GRUNDIG

Service Manual

LIVE CAM

LC 685 HE
LC 785 HE
NA 8-71

VIDEO Hi8 VIDEO 8

GRUNDIG
42 x DIGITAL ZOOM
IMAGE STABILIZER
LC785 HE
LIVE CAM

Zusätzlich erforderliche
Unterlagen für den Komplettservice

Additionally required
Service Manuals for the Complete Service

Ergänzung
Supplement
LC 685 HE
LC 785 HE
NA 8-71
Sach-Nr./Part No.
72010-529.35

Service Manual
Sicherheit
Safety
Sach-Nr./Part No.
72010-800.00
2604

Service Manual
LC 685 HE
Sach-Nr./Part No.
72010-525.55
V20807

Service Manual
B-Mechanik
B-Mechanism
Sach-Nr./Part No.
72010-525.05
V19034

Btx * 32700 #
Sachnummer
Part Number 72010-529.35
Änderungen vorbehalten
Subject to alteration
Printed in Germany
VK21/VK211 0597

Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Sach-Nummer 72010-800.00, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 72010-800.00, as well as the respective national deviations.

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Ersatzteilliste 0-4

Korrektur 1
CCD-TR2200E/TR2300E/TR3300E (LC 685 HE)

Ergänzung 1
CCD-TR2200E/TR2300E/TR3300E (LC 685 HE)

Differenz Manual
CCD-TR3100E/TR3400E (LC 785 HE)

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CCD-TR2200E/TR2300E/TR3300E (LC 685 HE)

Supplement 1
CCD-TR2200E/TR2300E/TR3300E (LC 685 HE)

Differences Manual
CCD-TR3100E/TR3400E (LC 785 HE)

Allgemeiner Teil

Netzteiladapter NA 8-71

Für den Service am Netzteiladapter NA 8-71 empfehlen wir, diesen komplett zu tauschen.
Der Netzteiladapter ist über die Sach-Nr. 75981-354.02 erhältlich.

Meßgeräte

Zweikanaloszilloskop
Digitalmultimeter
Tongenerator
Frequenzzähler
Vektorskop
Regeltrenntrafo
Millivoltmeter
Stabilisiertes Netzgerät
Farbgenerator

Beachten Sie bitte unser Meßtechnik-Programm, das Sie unter folgender Adresse erhalten:

Grundig electronics GmbH
Würzburger Str. 150
D-90766 Fürth/Bay.
Tel. 0911/703-0
Telefax 0911/703-4479

General Section

Power Supply Adapter NA 8-71

In respect to repairs of the power supply adapter NA 8-71 we recommend that it be replacement completely.
The power supply adapter is available under part no. 75981-354.02.

Test Equipment

Dual channel oscilloscope
Digital multimeter
AF generator
Frequency counter
Vectorscope
Variable isolating transfomer
Millivoltmeter
Stabilized power supply
Colour generator

Please note our Catalog "Test and Measuring Equipment" obtainable from:

Grundig electronics GmbH
Würzburger Str. 150
D-90766 Fürth/Bay.
Tel. 0911/703-0
Telefax 0911/703-4479

Sicherheitsausgangsprüfung

Nachdem Sie die Reparatur beendet haben, überprüfen Sie folgende Punkte, bevor Sie das Gerät an den Kunden zurückgeben:

1. Überprüfen Sie den Bereich Ihrer Reparatur auf fehlende oder schlechte Lötstellen. Kontrollieren Sie die ganze Platinenoberfläche auf Zinnspritzer und Kurzschlüsse.
2. Überprüfen Sie die Platinenverbindungen, und stellen Sie sicher, daß keine Leitungen eingequetscht werden oder Hochlast-Widerstände berühren.
3. Achten Sie auf unerlaubte Ersatzteile, insbesondere Transistoren, die bei früheren Reparaturen eingebaut wurden. Weisen Sie den Kunden darauf hin und empfehlen Sie den Austausch.
4. Achten Sie auf Teile, die zwar noch funktionieren, aber offensichtliche Abnutzungserscheinungen zeigen. Weisen Sie den Kunden darauf hin und empfehlen Sie den Austausch.

Technische Daten

Camera
Aufnahmelement: .... $^1/_4$" CCD Halbleiter-Chip
Auflösung: .... 470 000 Bildpunkte
Mindestbeleuchtung: .... 2 Lux (Low Light)
Zoombereich: .... 21-fach Motor-Zoom / 42-fach Digital
Brennweite: .... 3,9...81,9mm
Lichtstärke (Optik): .... 1 : 1,6...2,9
Auto-Fokus-System: .... TTL-Autofokus,
Innenfokussierung mit Makro-System
Filtergewindedurchmesser: 52mm

Video
Aufnahmesystem: .... 2 rotierende Köpfe,
Schrägspurverfahren, PAL
1 rotierender Löschkopf
Bandformat: 8mm-Videoformat-Cassette
Bandgeschwindigkeit: .... Standardplay (SP) 20,051mm/s
Longplay (LP) 10,058mm/s

Audio
Aufzeichnungsverfahren: .... 2 rotierende Köpfe,
Schrägspurverfahren FM
Mikrofon: .... Elektret-Kondensator-Mikrofon (Stereo)

Anschlußmöglichkeiten
S-Videobuchse: .... 4-polige Hosidenbuchse
Luminanzsignal: 1V$_{SS}$, 75Ω, unsymmetrisch, Sync. negativ,
Chrominanzsignal: 0,3V$_{SS}$, 75Ω, unsymmetrisch
Videobuchse: .... Cinchbuchse, 1V$_{SS}$, 75Ω,
unsymmetrisch, Sync. negativ
Audiobuchsen: .... Cinchbuchsen (2),
327mV (bei Lastimpedanz von 47kΩ)
Impedanz <2,2kΩ
Kopfhörerbuchse: .... Stereoklinkenbuchse 3,5mm
Edit-Buchse: .... Stereoklinkenbuchse 2,5mm
Mikrofonbuchse: .... Stereoklinkenbuchse 3,5mm,
mit 2,5...3V Ausgangsspannung, 0,338mV, Impedanz 6,8kΩ

Betriebsspannung
Akkubetrieb: 7,2V
Netzteilbetrieb: 8,4V

Leistungsaufnahme: .... durchschnittlich 4,5W

Allgemeines
Gewicht: .... ca. 920g (ohne Akkusatz)
Sucher: .... $^2/_3$" Suchermonitor (schwarz/weiß)
Arbeitstemperatur: .... 0°C ... 40°C

Safety Check-out

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particulary transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.

Technical Data

Camera
Image device: .... $^1/_4$" CCD Charge Coupled Device
Definition: .... 470 000 Pixel
Minimum illumination: .... 2 Lux (Low Light)
Zoom range: .... 21 fold motor zoom / 42 fold digital
Focus length: .... 3.9...81.9mm
Luminous intensity (Optic): .... 1 : 1.6...2.9
Auto focus system: .... TTL autofocus system,
inner focus wide macro system
Filter thread diameter: 52mm

Video
Video recording system: .... 2 Rotating heads,
Helical scanning FM system, PAL
1 Rotating erase head
Tape format: .... 8mm video format cassette
Tape speed: .... Standardplay (SP) 20.051mm/s
Longplay (LP) 10.058mm/s

Audio
Audio recording system: .... 2 Rotating heads,
Helical scanning FM system
Microphone: .... Electret condenser microphone (stereo)

Connections
S-Video socket: .... 4-pin, mini-DIN
Luminance signal: 1V$_{PP}$, 75Ω, unbalanced, sync negative
Chrominance signal: 0.3V$_{PP}$, 75Ω, unbalanced
Video socket: .... Cinch jack, 1V$_{PP}$, 75Ω,
unbalanced, sync negative
Audio sockets: .... Cinch jack (2),
327mV (at load impedance 47kΩ)
impedance <2.2kΩ
Headphones jack: .... Stereo minijack (3.5mm)
Edit socket: .... Stereo mini-minijack (2.5mm)
MIC jack: .... Stereo minijack (3.5mm),
with 2.5...3V DC output, 0.338mV, impedance 6.8kΩ

Power requirements
Battery pack: 7.2V
AC power adaptor: 8.4V

Power consumption: .... average 4.5W

General
Weight: .... approx. 920g (without battery pack)
Viewfinder: .... $^2/_3$" Viewfinder (black/white)
Operating temperature: .... 0°C ... 40°C

GRUNDIG

Ersatzteilliste
Spare Parts List

LIVE CAM

04 / 97

LC 685 HE

SACH-NR. / PART NO.: 75.8632-1000
BESTELL-NR. / ORDER NO.: G.MF 7600

POS. NR. POS. NO.	SACHNUMMER PART NUMBER	BEZEICHNUNG DESCRIPTION
	75981-350.58	**PLATTE KPL EZ-21/ BOARD CPL EZ-21**
IC 201	75981-019.70	IC LA 5621M-TE-L
Q 201	75981-019.71	TRANSISTOR FW 201-TL
Q 203	75981-353.37	SMD-TRANS. UN 9213 J
Q 204	75981-353.37	SMD-TRANS. UN 9213 J
Q 218	75981-019.72	TRANSISTOR UN 9210-QRS
	75981-351.31	**PLATTE KPL. DD-87(XP)/ BOARD CPL DD-87(XP)**
D 1504	75987-536.09	DIODE MA 8082 M

POS. NR. POS. NO.	SACHNUMMER PART NUMBER	BEZEICHNUNG DESCRIPTION

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⚠ (!)

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Btx *32700#

ÄNDERUNGEN VORBEHALTEN / SUBJECT TO ALTERATION

GRUNDIG

Ersatzteilliste
Spare Parts List

LIVE CAM

03 / 97

LC 785 HE

SACH-NR. / PART NO.: 75.8642-1000
BESTELL-NR. / ORDER NO.: G.MF 8700

POS. NR. POS. NO.	ABB. FIG.	SACHNUMMER PART NUMBER	ANZ. QTY.	BEZEICHNUNG Ⓓ	DESCRIPTION (GB)
0016.000	1	75981-354.00		LS-OBERTEIL KPL.	LS UPPER PART CPL.
0017.000	1	75981-354.73		PLATTE KPL. FK-67 (X2RP)	PLATE CPL FK-67 (X2RP)
0019.000	1	75981-354.76		GEHAEUSEUNTERTEIL KPL.	CABINET LOWER PART CPL
0101.000	3	75981-354.01		SEITENTEIL RECHTS	SIDE PART RIGHT
0258.000	6	75981-354.74		PLATTE KPL. MM-32	BOARD CPL MM-32
0260.000	6	75981-354.75		PLATTE KPL. VC-177	BOARD CPL VC-177
0264.000	6	75981-354.72		PLATTE HI-40(X2RP)	BOARD HI-40(X2RP)
0269.000	6	75981-354.77		VERBINDER EXTERNAL 8P	CONNECTOR EXTERNAL 8P
0317.000	7	75981-354.78		BEDIENPLATTE, BATTERIE	CONTROL BOARD, BATTERY
	⚠	75981-354.02		NETZTEIL NA 8-71	POWER SUPPLY NA 8-71
		72010-529.01		BEDIENUNGSANLEITUNG D/I	INSTRUCTION MANUAL D/I
		72010-529.00		BEDIENUNGSANLEITUNG GB/E	INSTRUCTION MANUAL GB/E
		72010-529.02		BEDIENUNGSANLEITUNG F/NL	INSTRUCTION MANUAL F/NL
		72010-529.03		BEDIENUNGSANLEITUNG S/P	INSTRUCTION MANUAL S/P
		72010-525.55		SERVICE MANUAL D/GB LC 685 HE	SERVICE MANUAL D/GB LC 685 HE
		72010-529.35		SERVICE MANUAL D/GB LC 785 HE	SERVICE MANUAL D/GB LC 785 HE

ALLE WEITEREN TEILE SIEHE E-LISTE
LC 685 HE SACH.NR.: 75.8632-1000
BESTELL-NR.: G.MF 7600
AUSGABE 7/96

FOR ALL OTHER PARTS SEE
LC 685 HE PART NO.: 75.8632-1000
ORDER NO.: G.MF 7600
EDITION 7/96

POS. NR. POS. NO.	SACHNUMMER PART NUMBER	BEZEICHNUNG DESCRIPTION
	75981-354.74	**PLATTE KPL. MM-32/ BOARD CPL. MM-32**
IC 701	75981-354.70	IC F 432165PZ-TEB
IC 702	75981-354.71	IC ZA 4035HR
	75981-354.75	**PLATTE KPL. VC-177/ BOARD CPL. VC-177**
IC 102	75981-354.68	IC MB 87B121PFV-G-BND-ER
IC 105	75981-354.66	IC M 65510FP-600D
IC 106	75981-354.67	IC HG 51D306TETL
IC 117	75981-354.69	IC CXP 912032-038R

POS. NR. POS. NO.	SACHNUMMER PART NUMBER	BEZEICHNUNG DESCRIPTION

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Btx *32700#

ÄNDERUNGEN VORBEHALTEN / SUBJECT TO ALTERATION

CCD-TR3100E/TR3400E

RMT-717

SERVICE MANUAL

AEP Model
UK Model
CCD-TR3100E
E Model
Australian Model
CCD-TR3400E

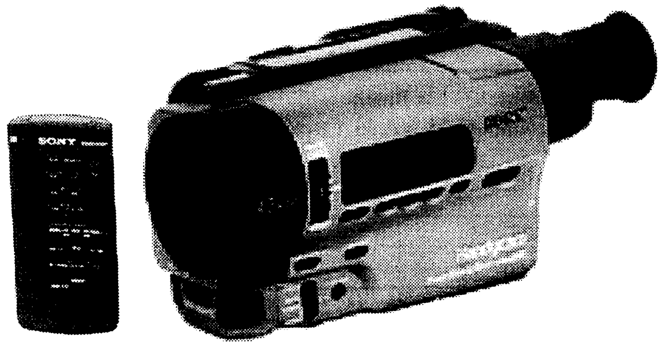


Photo: CCD-TR3100E
RMT-717

Video Hi8
Handycam
B MECHANISM

Differences Manual

For MECHANISM ADJUSTMENTS, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL VII" (9-973-801-11).

- Only the differences between CCD-TR3100E/TR3400E and CCD-TR3300E are mentioned in the Service Manual. Use for repair together with the Service Manual of CCD-TR2200E/TR2300E/TR3300E (9-973-892-11), Supplement-1 (9-973-892-81) and Correction-1 (9-973-892-91).

- **Differeces compared with CCD-TR3300E**

1. **CCD-TR3100E**
    - Deleting the EZ connector and the EZ-21 Board.
    - Changing the View Finder (Color EVF → B/W EVF (VF-104 Board))
    - Changing the Memory Control IC (IC701, IC702 on the MM-32 Board)
    - Changing the Mode Control IC (IC1952 on the HI-40 Board)
    - Changing the Video, Y. Chroma and Servo/System Control IC (IC102, 105, 106, 117 on the VC-177 Board)
    - Changing the Accessory Shoe

2. **CCD-TR3400E**
    - Deleting the EZ connector and the EZ-21 Board.
    - Changing the Memory Control IC (IC701, IC702 on the MM-32 Board)
    - Changing the RGB Decoder IC (IC902 on the VF-96 Board)
    - Changing the Mode Control IC (IC1952 on the HI-40 Board)
    - Changing the Video, Y. Chroma and Servo/System Control IC (IC102, 105, 106, 117 on the VC-177 Board)
    - Changing the Accessory Shoe

Hi8 VIDEO CAMERA RECODER

MICROFILM

SONY®

Table for difference of Functions

		CCD-TR3300E		CCD-TR3100E	CCD-TR3400E
		AEP, UK	E, AUS, HK, JE		
Remote Commander		RMT-716	RMT-715	RMT-717	
Viewfinder		Color EVF		B/W EVF *1	Coler EVF *2
Digital Memory		○	○	○	○
Easy Connector		○	○		
VTR REC (Line in)			○		○
Lens	Optical	21 ×	21 ×	21 ×	21 ×
	Digital	42 ×	84 ×	42 ×	210 ×

* 1: with VF-104 Board
2: with VF-95, VF-96, LB-45 Board and FP-420 Flexible Board

3. Changing the Mounted board

	CCD-TR3300E		CCD-TR3100E	CCD-TR3400E
	AEP, UK	E, AUS, JE		
VC-177 BOARD	A-7092-986-A	A-7092-987-A	A-7093-179-A	A-7093-181-A
HI-40 BOARD	A-7092-933-A		A-7093-178-A	A-7093-180-A
MM-32 BOARD	A-7072-700-A		A-7073-040-A	
VF-96 BOARD	A-7072-756-A		——	A-7073-044-A
VF-104 BOARD	——		A-7066-841-A	——
FK-67 BOARD	A-7072-739-A	A-7072-699-A	A-7073-041-A	A-7072-758-A
EZ-21 BOARD	A-7072-550-B		——	
FP-386 Flexible Board	○		——	○
FP-490 Flexible Board	——		○	——
DD-87 BOARD	A-7092-871-A		A-7092-916-A	A-7092-871-A

SPECIFICATIONS

Video camera recorder

System

Video recording system
Two rotary heads, Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8mm video format cassette (Hi8 or standard 8 mm)
Recording/Playback time
SP mode: 2 hours (E5/P5-120) (AEP, UK)
SP mode: 1 hours 30 minutes (E5/P5-90)(AUS,E,HK)
LP mode: 4 hours (E5/P5-120) (AEP, UK)
LP mode: 3 hours (E5/P5-90) (AUS,E,HK)
Fastforward/rewind time
Approx. 5 min. (E5/P5-120)
Image device
CCD (Charge Coupled Device)
Viewfinder
CCD-TR3400E:
Electronic viewfinder (colour)
CCD-TR3100E:
Electronic viewfinder (Monochrome)
Lens
Combined power zoom lens
Filter diameter 52 mm (2 1/8 in.)
21 x (Optical)
42 x (Digital): CCD-TR3100E
210 x (Digital): CCD-TR3400E
Focal distance
3.9 – 81.9 mm (5/32 – 3 1/4 in.)
37 – 777 mm (1 1/2 – 30 5/8 in.) when converted to a 35 mm still camera
Colour temperature
Auto,
One push white balance,
Indoor -☼- 3,200 K,
Outdoor ☀ 5,800 K
Minimum illumination
2 lux at F1.6
0.1 lux at F1.6 when using the Slow shutter function
Illumination range
2 lux to 100,000 lux
Recommended illumination
More than 100 lux

Input and output connectors

S video input/output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced
Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced
Video input/output
Phono jack, 1 Vp-p, 75 ohms, unbalanced
Audio input/output
Phono jacks (2: stereo L and R)
Input 327 mV, input impedance more than 47 kilohms
Output 327 mV, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT
Special minijack, DC 5 V
Headphone jack
Stereo minijack
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kilohms (ø 3.5 mm)
Stereo type

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption
CCD-TR3400E:
4.4 W during camera recording
CCD-TR3100E:
4.4 W during camera recording
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
-20°C to +60°C (-4°F to +140°F)
Dimensions (Approx.)
CCD-TR3400E:
110 x 110 x 215 mm
(4 3/8 x 4 3/8 x 8 1/2 in.) (w/h/d)
CCD-TR3100E:
110 x 110 x 222 mm
(4 3/8 x 4 3/8 x 8 7/8 in.) (w/h/d)
Mass (Approx.)
CCD-TR3400E:
910 g (2 lb) excluding the battery pack, lithium battery, cassette, lens cap and shoulder strap
1.1 kg (2 lb 6 oz) including the battery pack NP-F530, lithium battery CR 2025, cassette E5/P5-120, lens cap and shoulder strap
CCD-TR3100E:
910 g (2 lb) excluding the battery pack, lithium battery, cassette, lens cap and shoulder strap
1.1 kg (2 lb 6 oz) including the battery pack NP-F530, lithium battery CR 2025, cassette E5/P5-120, lens cap and shoulder strap
Microphone
Stereo type
Supplied accessories
See page 3.

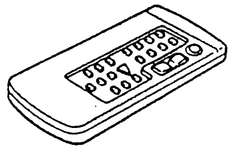
AC power adaptor

Power requirements
110 – 240 V AC, 50/60 Hz
Power consumption
25 W
Output voltage
DC OUT: 8.4 V, 1.9 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode
Application
Sony battery packs NP-F530, NP-F730, NP-F930 lithium ion type
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
-20°C to +60°C (-4°F to +140°F)
Dimensions (Approx.)
81 x 45 x 163 mm (3 1/4 x 1 13/16 x 6 1/2 in.) (w/h/d) including projecting parts and controls
Mass (Approx.)
560 g (1 lb 3 oz)

Design and specifications are subject to change without notice.

Supplied accessories

1



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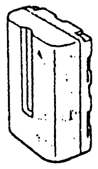

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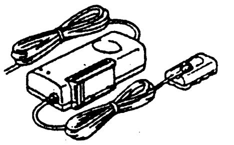

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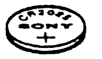

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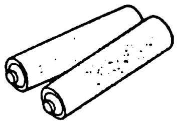

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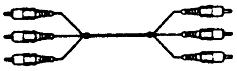

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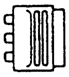

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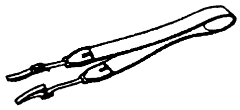

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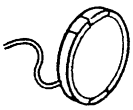

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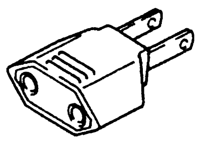
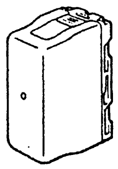


11



1 **Wireless Remote Commander** (1)

2 **NP-F530 Battery pack** (1)

3 **AC-V316 AC power adaptor** (1)

4 **CR2025 Lithium Battery** (1)
The lithium battery is already installed in your camcorder.

5 **R6 (size AA) battery for Remote Commander** (2)

6 **A/V connecting cable** (1)

7 **21 pin adaptor** (1)
CCD-TR3100E

8 **Shoulder strap** (1)

9 **Lens cap** (1)
This lens cap is already set on your camcorder.

10 **2 pin conversion adaptor** (1)
CCD-TR3400E

11 **Battery case** (1)
CCD-TR3100E

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Note: ( ): The page above correspond to CCD-TR2200E/TR2300E/TR3300E Service Manual.

☞ : indicated additional portion

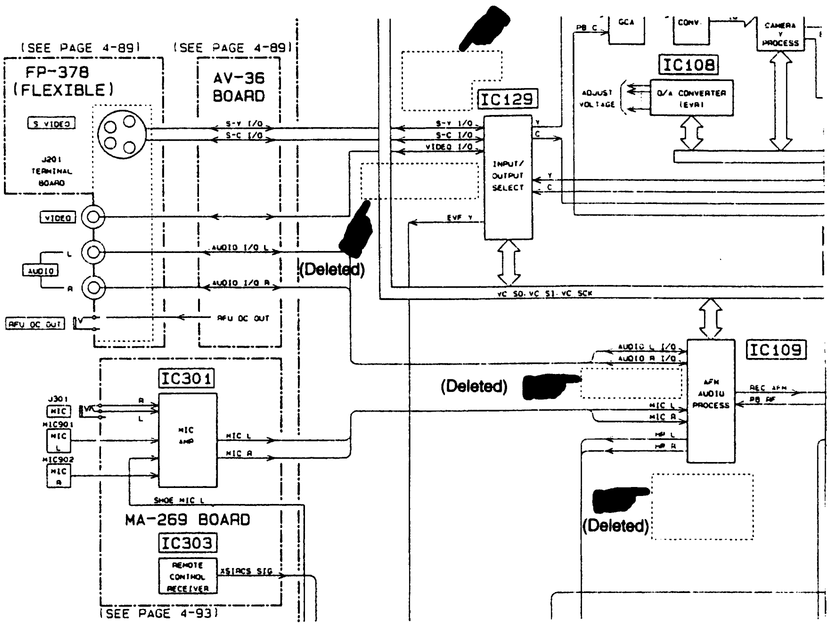
☞ : indicated changed portion

☛ : indicated deleted portion

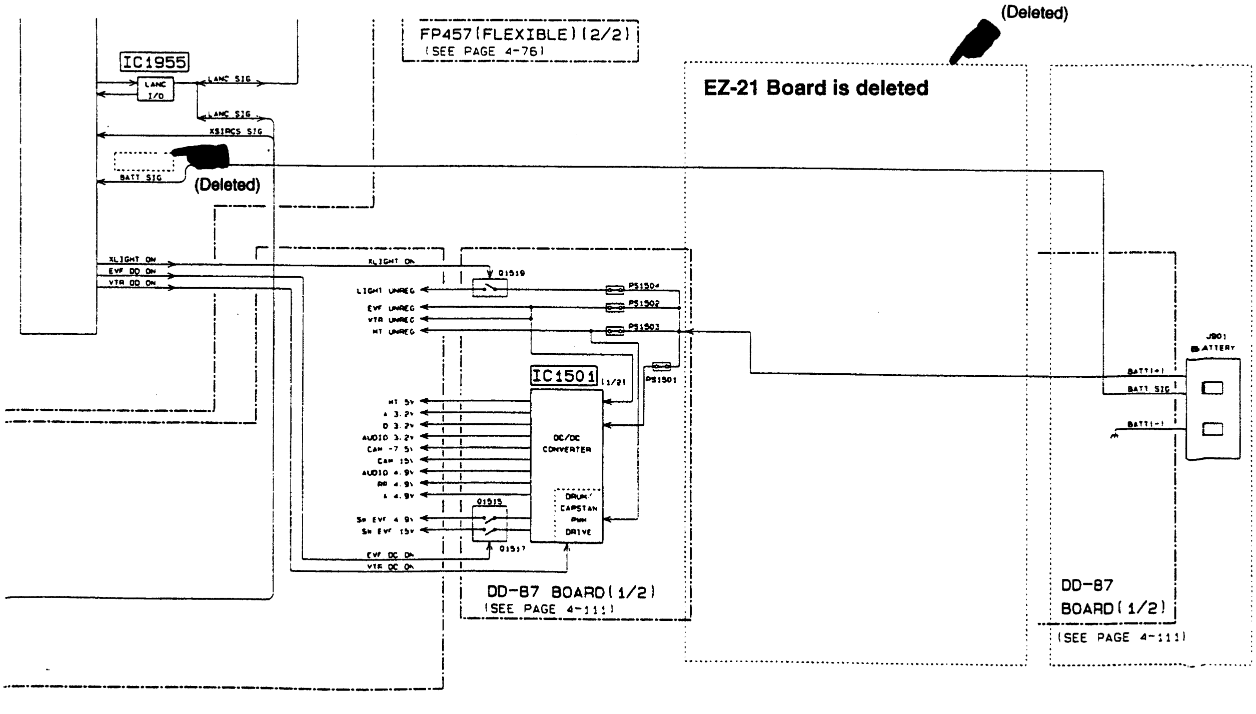
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

(Page 3-1)

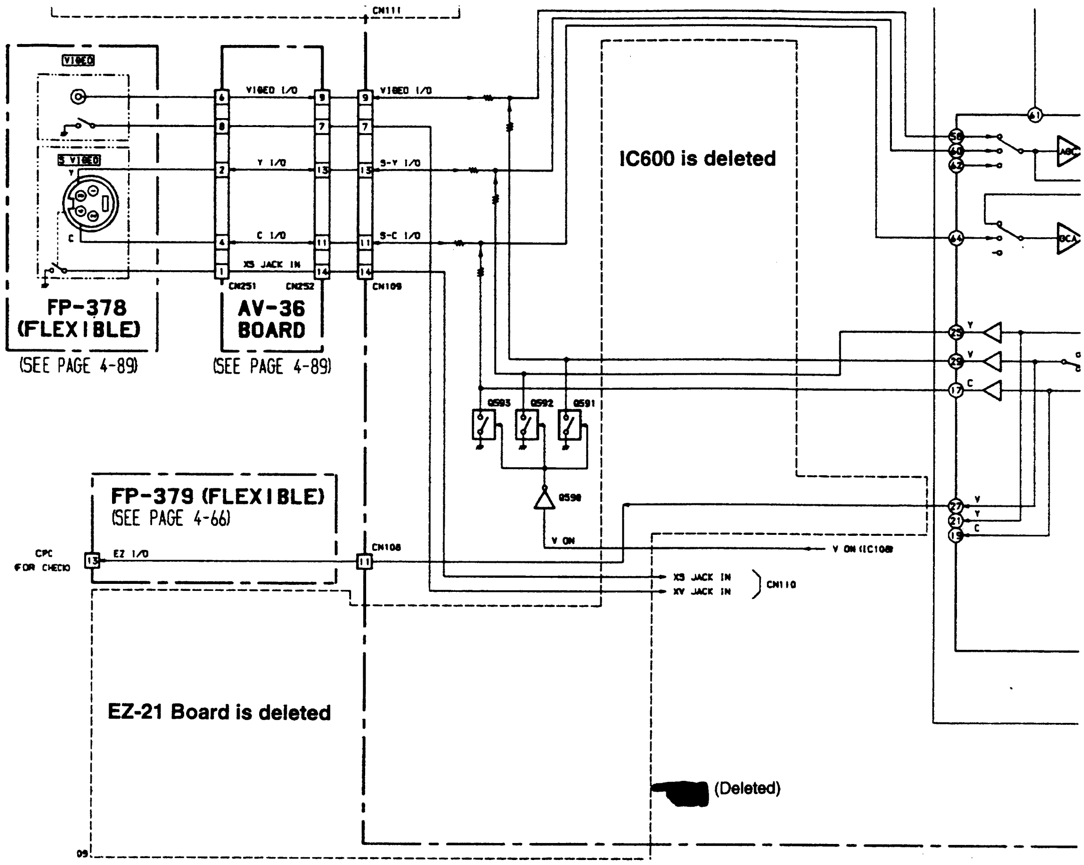

(Deleted)
(SEE PAGE 4-89)
FP-378 (FLEXIBLE)
S VIDEO
J201 TERMINAL BOARD
(SEE PAGE 4-89)
AV-36 BOARD
S-Y I/O
S-C I/O
VIDEO
AUDIO
L
R
AUDIO I/O L
AUDIO I/O R
(Deleted)
RFU DC OUT
RFU DC OUT
IC129
S-Y I/O
S-C I/O
VIDEO I/O
INPUT/ OUTPUT SELECT
Y
C
EVF Y
VC SO, VC SI, VC SCK
PB C
GCA
CONV.
CAMERA Y PROCESS
IC108
ADJUST VOLTAGE
D/A CONVERTER (EVR)
IC109
AUDIO L I/O
AUDIO R I/O
(Deleted)
AFM AUDIO PROCESS
REC AFM
PB RF
MIC L
MIC R
HP L
HP R
(Deleted)
J301 MIC
MIC901 MIC L
MIC902 MIC R
IC301
R
L
MIC AMP
MIC L
MIC R
SHOE MIC L
MA-269 BOARD
IC303
REMOTE CONTROL RECEIVER
XSIRCS SIG
(SEE PAGE 4-93)

(Page 3-3,4)

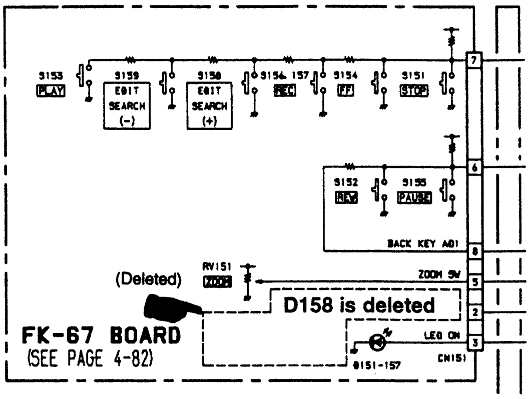

(Deleted)
FP457 (FLEXIBLE) (2/2)
(SEE PAGE 4-76)
EZ-21 Board is deleted
IC1955
LANC I/O
LANC SIG
LANC SIG
XSIRCS SIG
BATT SIG
(Deleted)
XLIGHT ON
EVF DD ON
VTR DD ON
XLIGHT ON
Q1519
LIGHT UNREG
EVF UNREG
VTR UNREG
HI UNREG
PS1504
PS1502
PS1503
PS1501
IC1501 (1/2)
DC/DC CONVERTER
DRUM/ CAPSTAN PWM DRIVE
HI 5V
A 3.2V
D 3.2V
AUDIO 3.2V
CAM -7.5V
CAM 15V
AUDIO 4.9V
RP 4.9V
A 4.9V
Q1515
SW EVF 4.9V
SW EVF 15V
Q1517
EVF DC ON
VTR DC ON
DD-87 BOARD (1/2)
(SEE PAGE 4-111)
J901 BATTERY
BATT(+)
BATT SIG
BATT(-)
DD-87 BOARD (1/2)
(SEE PAGE 4-111)

3-2. CAMERA BLOCK DIAGRAM

(Page 3-6)


CN111
VIDEO
S VIDEO
Y
C
VIDEO I/O
Y I/O
C I/O
XS JACK IN
CN251
CN252
CN109
S-Y I/O
S-C I/O
FP-378 (FLEXIBLE)
(SEE PAGE 4-89)
AV-36 BOARD
(SEE PAGE 4-89)
IC600 is deleted
61
58
60
62
AGC
64
DCA
25
29
17
Q593
Q592
Q591
Q590
V ON
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
CPC (FOR CHECK)
EZ I/O
CN108
V ON (IC108)
XS JACK IN
XV JACK IN
CN110
27
21
15
EZ-21 Board is deleted
(Deleted)
09

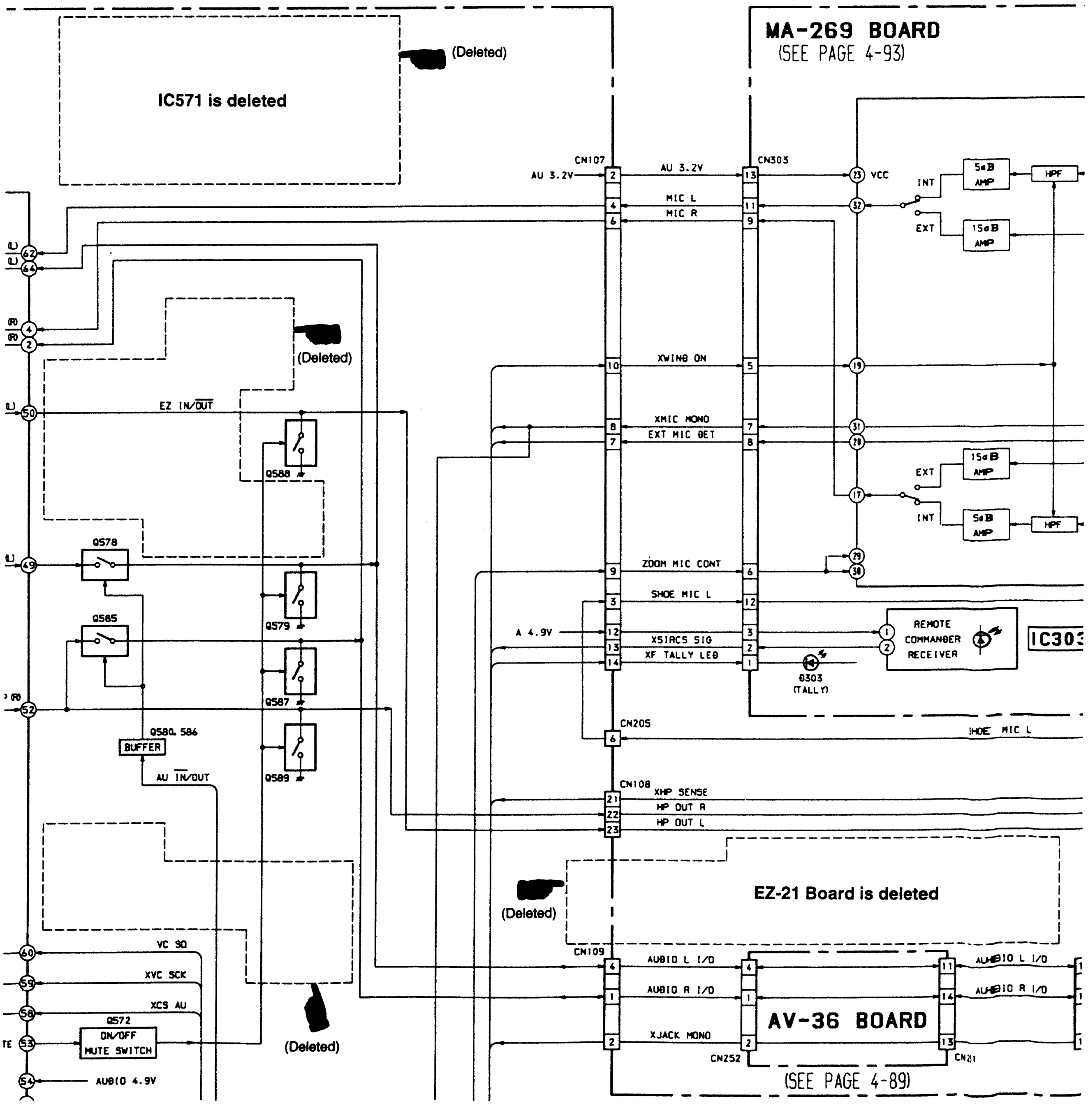
3-5. MODE CONTROL BLOCK DIAGRAM (Page 3-23)


(Deleted)

D158 is deleted

S153
PLAY
S159
EDIT
SEARCH
(-)
S158
EDIT
SEARCH
(+)
S156, 157
REC
S154
FF
S151
STOP
S152
REW
S155
PAUSE
BACK KEY AD1
RV151
ZOOM
ZOOM 5V
LED ON
D151-157
CN151
7
6
8
5
2
3
FK-67 BOARD
(SEE PAGE 4-82)

3-6. AUDIO BLOCK DIAGRAM (Page 3-26)


IC571 is deleted

(Deleted)

(Deleted)

EZ-21 Board is deleted

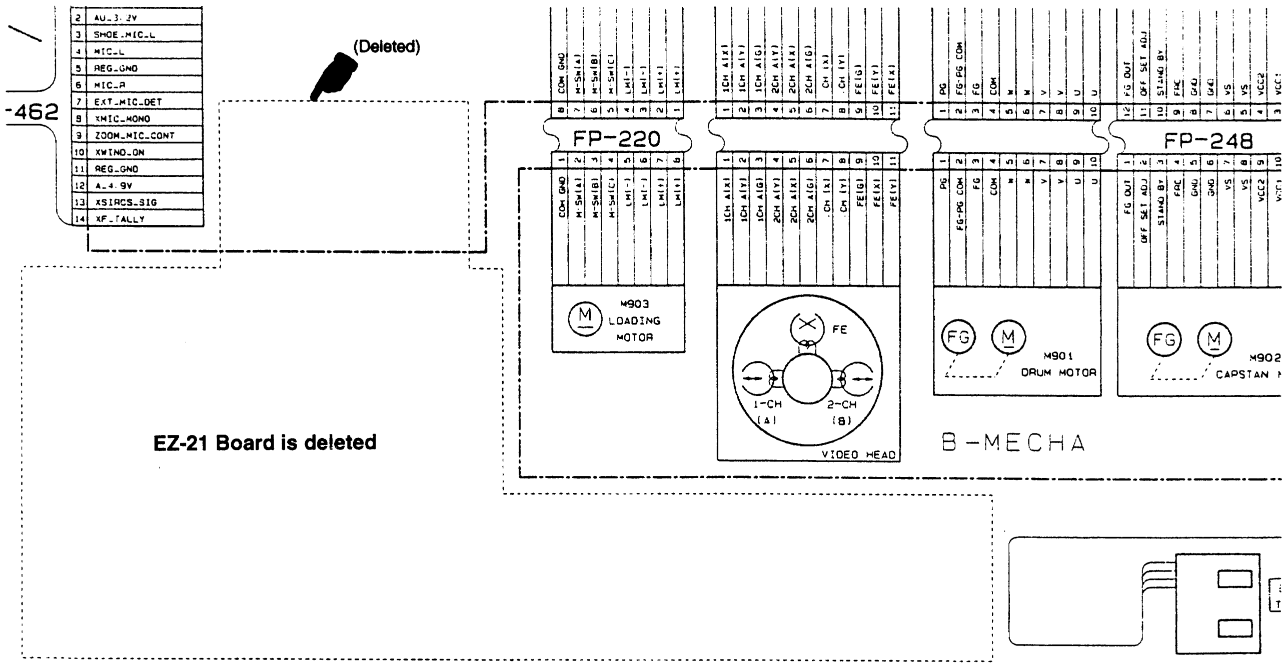
(Deleted)

(Deleted)

MA-269 BOARD
(SEE PAGE 4-93)
CN107
AU 3.2V
AU 3.2V
CN303
MIC L
MIC R
VCC
INT
EXT
5dB
AMP
15dB
AMP
HPF
XWIND ON
XMIC MONO
EXT MIC DET
EZ IN/OUT
Q588
Q578
Q579
Q585
Q587
Q580, 586
BUFFER
AU IN/OUT
Q589
ZOOM MIC CONT
SHOE MIC L
A 4.9V
XSIRCS SIG
XF TALLY LED
REMOTE
COMMANDER
RECEIVER
IC303
D303
(TALLY)
CN205
SHOE MIC L
CN108
XHP SENSE
HP OUT R
HP OUT L
CN109
AUDIO L I/O
AUDIO R I/O
XJACK MONO
AV-36 BOARD
CN252
CN251
(SEE PAGE 4-89)
VC SO
XVC SCK
XCS AU
Q572
ON/OFF
MUTE SWITCH
AUDIO 4.9V
62
64
4
2
50
49
52
60
59
58
53
54

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

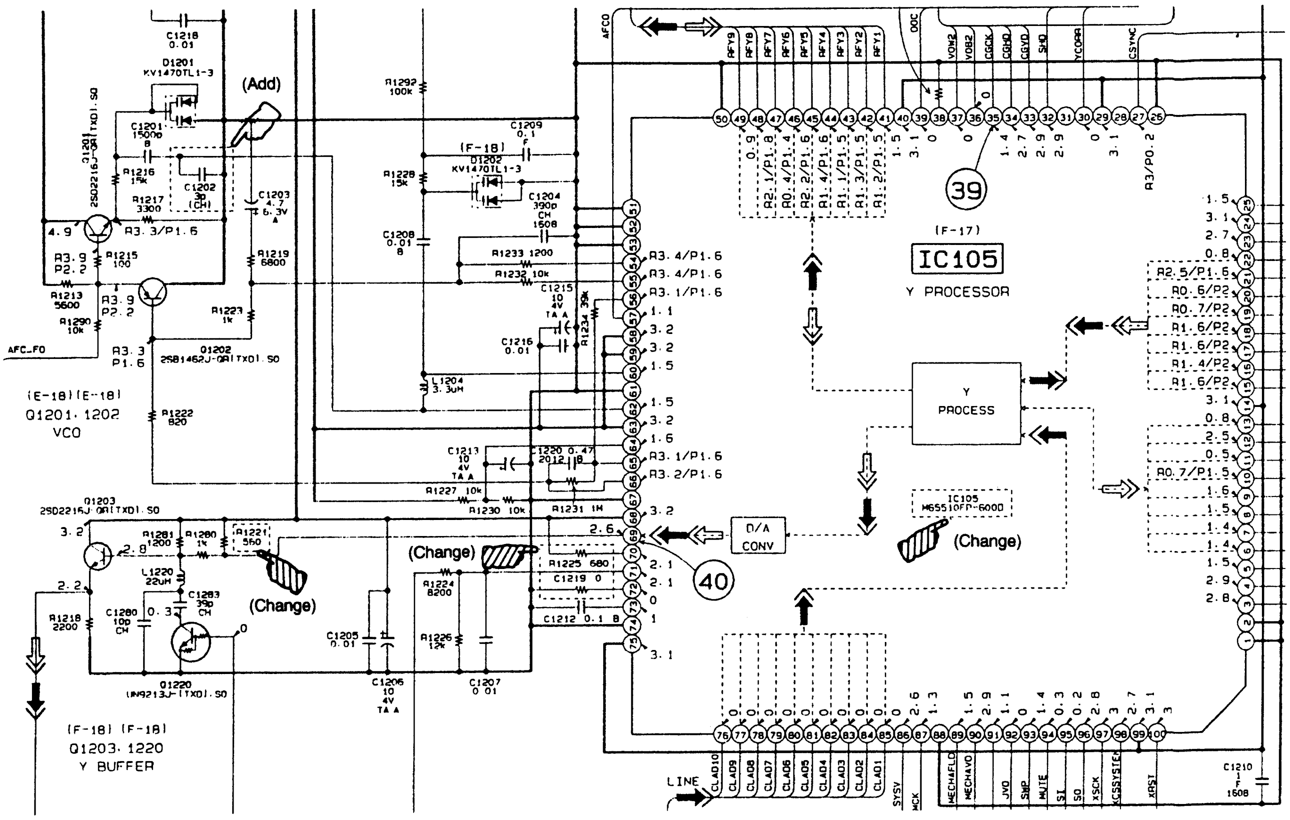
4-1. FRAME SCHEMATIC DIAGRAM
(Page 4-1, 2)


-462
2 AU_3.2V
3 SHOE_MIC_L
4 MIC_L
5 REG_GND
6 MIC_R
7 EXT_MIC_DET
8 XMIC_MONO
9 ZOOM_MIC_CONT
10 XWIND_ON
11 REG_GND
12 A_4.9V
13 XSIRCS_SIG
14 XF_TALLY
(Deleted)
EZ-21 Board is deleted
FP-220
FP-248
COM GND
M-SW(A)
M-SW(B)
M-SW(C)
LM(-)
LM(+)
1CH A(X)
1CH A(Y)
1CH A(G)
2CH A(Y)
2CH A(G)
CH (X)
CH (Y)
FE(G)
FE(Y)
FE(X)
PG
FG-PG COM
FG
COM
W
V
U
FG OUT
OFF SET ADJ
STAND BY
FRC
GND
VS
VCC2
M903
LOADING
MOTOR
FE
1-CH
(A)
2-CH
(B)
VIDEO HEAD
M901
DRUM MOTOR
M902
CAPSTAN
B-MECHA

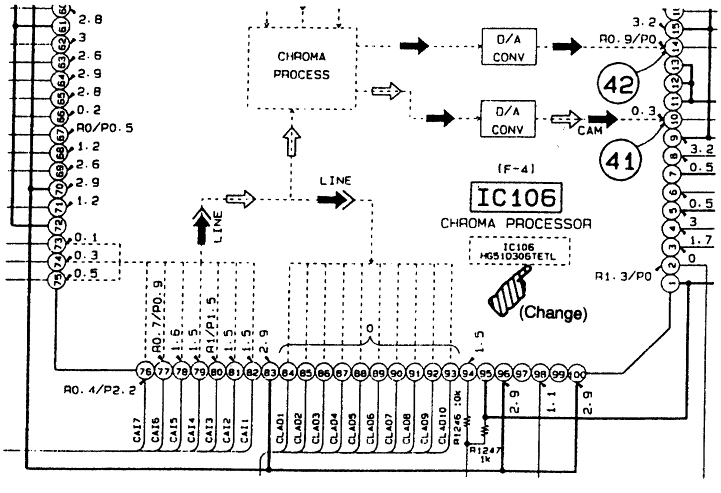
4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

VC-177 BOARD (5/14) (CL BLOCK)

(Page 4-31, 32, Location F-6 – J-12)


(Add)
(Change)
(Change)
(Change)
(Change)
(E-18) (E-18)
Q1201, 1202
VCO
(F-18) (F-18)
Q1203, 1220
Y BUFFER
(F-17)
IC105
Y PROCESSOR
Y PROCESS
D/A CONV
IC105 M65510FP-600D
39
40
LINE
AFC_FO

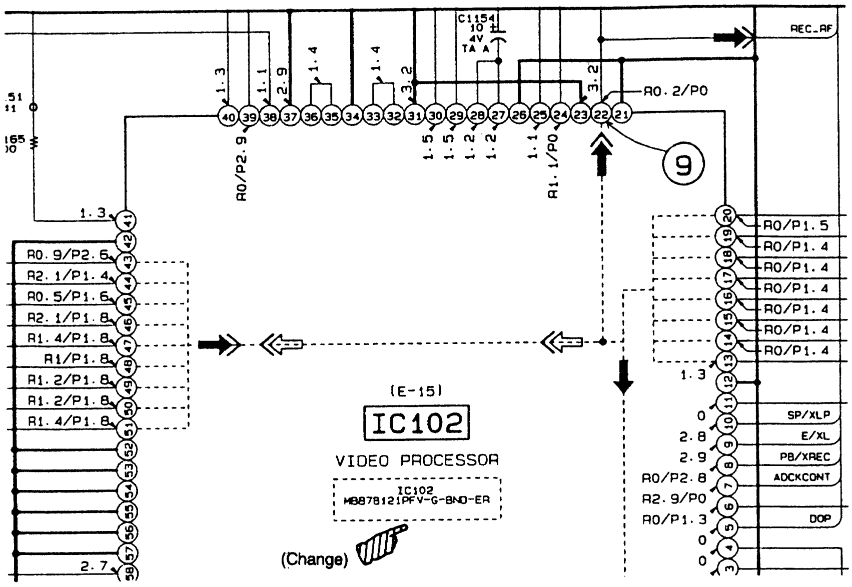
(Page 4-33 Location I-19)


CHROMA PROCESS
D/A CONV
D/A CONV
CAM
(F-4)
IC106
CHROMA PROCESSOR
IC106 HG51D306TETL
(Change)
LINE
41
42

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		————		C1202	1-162-908-11	CERAMIC CHIP 3PF	0.25PF 50V
C1219	1-135-149-21	TANTAL CHIP 2.2uF 20%	10V	C1219	1-216-296-11	CONDUCTOR CHIP (3216)	
IC105	8-759-357-64	IC F45819BPZ-TEB		IC105	8-759-457-06	IC M65510FP-600D	
IC106	8-759-387-35	IC HG51CS276TETL		IC106	8-759-457-05	IC HG51D306TETL	
R1221	1-216-820-11	METAL CHIP 820 5%	1/16W	R1221	1-216-818-11	METAL GLAZE 560 5%	1/16W
R1225	1-216-829-11	METAL CHIP 4.7K 5%	1/16W	R1225	1-216-819-11	METAL GLAZE 680 5%	1/16W

VC-177 BOARD (6/14) (RF, ER BLOCK)

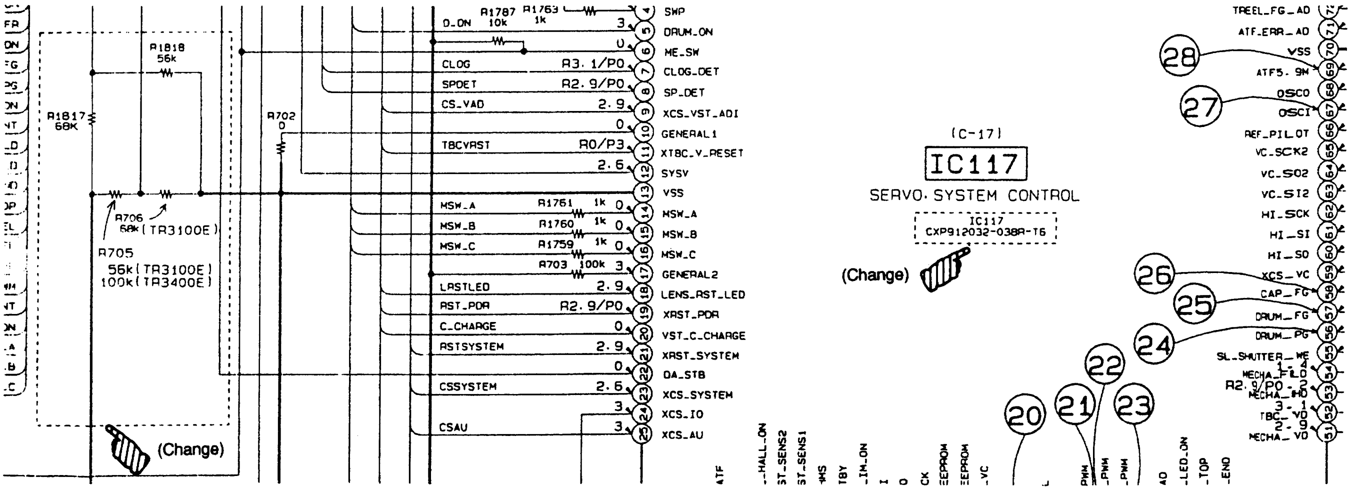
(Page 4-37, Location F-7)


REC_RF
C1154 10 4V TA A
RO.2/PO
9
(E-15)
IC102
VIDEO PROCESSOR
IC102 MB87B121PFV-G-BND-ER
(Change)
RO.9/P2.6
R2.1/P1.4
RO.5/P1.6
R2.1/P1.8
R1.4/P1.8
R1/P1.8
R1.2/P1.8
R1.2/P1.8
R1.4/P1.8
RO/P1.5
RO/P1.4
RO/P1.4
RO/P1.4
RO/P1.4
RO/P1.4
RO/P1.4
SP/XLP
E/XL
PB/XREC
ADCKCONT
DOP
RO/P2.9
R1.1/PO
RO/P2.8
R2.9/PO
RO/P1.3

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
IC102	8-759-357-62	IC MB87B108DPFV-G-BND-ER		IC102	8-759-447-79	IC MB87B121PFV-G-BND-ER	

VC-177 BOARD (9/14) (MC BLOCK)

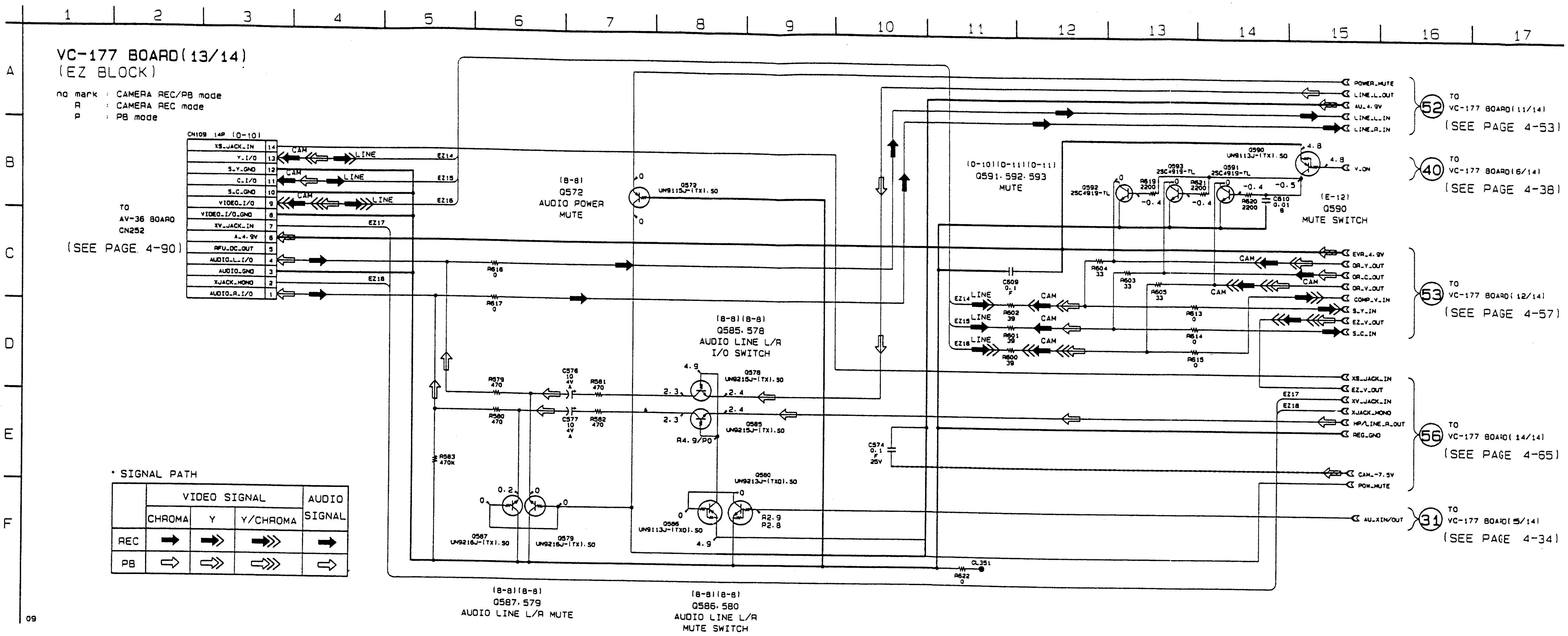
(Page 4-45, 46, Location H-5 – K-12)


R1818 56k
R1817 68K
R702 0
R706 68k (TR3100E)
R705 56k (TR3100E) 100k (TR3400E)
(Change)
R1787 10k
R1763 1k
R1761 1k
R1760 1k
R1759 1k
R703 100k
D_ON
CLOG
SPDET
CS_VAD
TBCVRST
MSW_A
MSW_B
MSW_C
LRSTLED
RST_POR
C_CHARGE
RSTSYSTEM
CSSYSTEM
CSAU
SWP
DRUM_ON
ME_SW
CLOG_DET
SP_DET
XCS_VST_ADI
GENERAL1
XTBC_V_RESET
SYSV
VSS
MSW_A
MSW_B
MSW_C
GENERAL2
LENS_RST_LED
XRST_POR
VST_C_CHARGE
XRST_SYSTEM
DA_STB
XCS_SYSTEM
XCS_IO
XCS_AU
(C-17)
IC117
SERVO. SYSTEM CONTROL
IC117 CXP912032-038R-T6
(Change)
TREEL_FG_AD
ATF_ERR_AD
VSS
ATF5.9H
OSCO
OSCI
REF_PILOT
VC_SCK2
VC_SO2
VC_SI2
HI_SCK
HI_SI
HI_SO
XCS_VC
CAP_FG
DRUM_FG
DRUM_PG
SL_SHUTTER_ME
MECHA_FLD
MECHA_MD
TBC_VD
MECHA_VD
20
21
22
23
24
25
26
27
28

CCD-TR3300E						CCD-TR3100E/TR3400E					
Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
IC117	8-752-872-77	IC CXP912032-010R-T6				IC117	8-752-882-20	IC CXP912032-038R			
R705	1-216-837-11	METAL CHIP	22K	5%	1/16W (TR3300E: AEP, UK)	R705	1-216-842-11	METAL GLAZE	56K	5%	1/16W (TR3100E)
R705	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR3300E: AUS, E)	R705	1-216-845-11	METAL GLAZE	100K	5%	1/16W (TR3400E)
R706	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR3300E: AEP, UK)	R706	1-216-843-11	METAL GLAZE	68K	5%	1/16W (TR3100E)
R1817	1-216-845-11	METAL CHIP	100K	5%	1/16W	R1817	1-216-843-11	METAL GLAZE	68K	5%	1/16W
R1818	1-216-841-11	METAL CHIP	47K	5%	1/16W	R1818	1-216-842-11	METAL GLAZE	56K	5%	1/16W

VC-177 (13/14) (VIDEO IN/OUT (2)) SCHEMATIC DIAGRAM

– Ref No. VC-177 BOARD: 10,000 series –

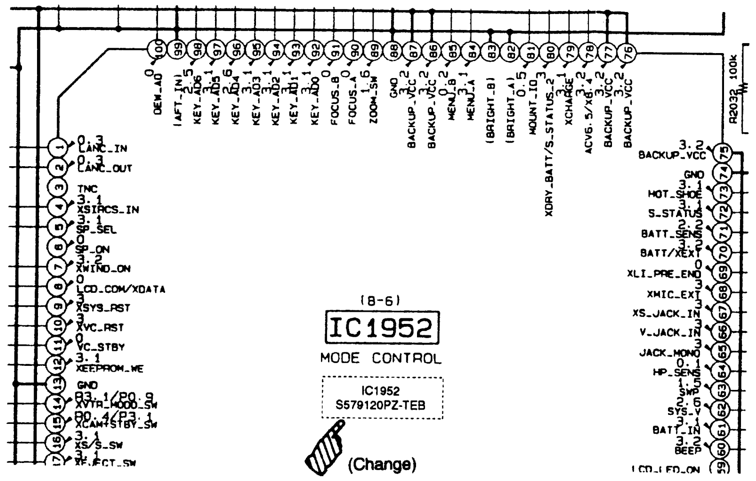

VC-177 BOARD(13/14)
(EZ BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
CN109 14P (0-10)
XS_JACK_IN
Y_I/O
S_Y_GND
C_I/O
S_C_GND
VIDEO_I/O
VIDEO_I/O_GND
XV_JACK_IN
A_4.9V
RFU_DC_OUT
AUDIO_L_I/O
AUDIO_GND
XJACK_MONO
AUDIO_R_I/O
TO AV-36 BOARD CN252
(SEE PAGE 4-90)
CAM
LINE
EZ14
EZ15
EZ16
EZ17
EZ18
(8-8) Q572 AUDIO POWER MUTE
Q572 UN9115J-(TX).SO
(8-8)(8-8) Q585, 578 AUDIO LINE L/R I/O SWITCH
Q578 UN9215J-(TX).SO
Q585 UN9215J-(TX).SO
(0-10)(0-11)(0-11) Q591, 592, 593 MUTE
Q592 2SC4919-TL
Q593 2SC4919-TL
Q591 2SC4919-TL
Q590 UN9113J-(TX).SO
(E-12) Q590 MUTE SWITCH
C509 0.1 F
C574 0.1 F 25V
C576 10 4V
C577 10 4V
C610 0.01
R616 0
R617 0
R579 470
R580 470
R581 470
R582 470
R583 470k
R600 39
R601 39
R602 39
R603 33
R604 33
R605 33
R613 0
R614 0
R615 0
R619 2200
R620 2200
R621 2200
R622 0
CL351
Q580 UN9213J-(TX0).SO
Q586 UN9113J-(TX0).SO
Q587 UN9216J-(TX).SO
Q579 UN9216J-(TX).SO
(8-8)(8-8) Q587, 579 AUDIO LINE L/R MUTE
(8-8)(8-8) Q586, 580 AUDIO LINE L/R MUTE SWITCH
POWER_MUTE
LINE_L_OUT
AU_4.9V
LINE_L_IN
LINE_R_IN
52 TO VC-177 BOARD(11/14) (SEE PAGE 4-53)
V_ON
40 TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
EVR_4.9V
OR_Y_OUT
OR_C_OUT
OR_V_OUT
COMP_V_IN
S_Y_IN
EZ_V_OUT
S_C_IN
53 TO VC-177 BOARD(12/14) (SEE PAGE 4-57)
XS_JACK_IN
EZ_V_OUT
XV_JACK_IN
XJACK_MONO
HP/LINE_R_OUT
REG_GND
CAM_-7.5V
PON_MUTE
56 TO VC-177 BOARD(14/14) (SEE PAGE 4-65)
AU_XIN/OUT
31 TO VC-177 BOARD(5/14) (SEE PAGE 4-34)
4.8
-0.4
-0.5
0.2
2.3
2.4
4.9
R4.9/P0
R2.9
P2.8
• SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
REC
PB
09

CCD-TR3300E (E, Australian)				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C572	1-135-201-11	TANTAL CHIP 10uF 20%	4V			Delete	
C573	1-135-201-11	TANTAL CHIP 10uF 20%	4V				
C601	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V				
C602	1-162-823-11	CERAMIC CHIP 0.47uF 10%	16V				
C603	1-162-823-11	CERAMIC CHIP 0.47uF 10%	16V				
C604	1-162-823-11	CERAMIC CHIP 0.47uF 10%	16V				
C605	1-162-823-11	CERAMIC CHIP 0.47uF 10%	16V				
CN203	1-774-641-21	CONNECTOR, FFC/FPC					
IC501	8-759-075-68	IC TC4066BFS-EL					
IC600	8-759-284-49	IC NJM2285V-TE2					
Q573	8-729-429-18	TRANSISTOR UN9213					
Q574	8-729-037-76	TRANSISTOR UN9215J-(TX), SO					
Q575	8-729-037-77	TRANSISTOR UN946J-(TX), SO					
Q576	8-729-037-61	TRANSISTOR UN9113J-(TX).SO					
Q577	8-729-429-18	TRANSISTOR UN9113					
Q581	8-729-037-61	TRANSISTOR UN9113J-(TX).SO					
Q582	8-729-037-76	TRANSISTOR UN9215J-(TX).SO					
Q583	8-729-037-77	TRANSISTOR UN9216J-(TX).SO					
Q584	8-729-429-18	TRANSISTOR UN9213					

CCD-TR3300E (E, Australian)				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R572	1-216-817-11	METAL CHIP 470 5%	1/16W			Delete	
R573	1-216-817-11	METAL CHIP 470 5%	1/16W				
R574	1-216-817-11	METAL CHIP 470 5%	1/16W				
R575	1-216-817-11	METAL CHIP 470 5%	1/16W				
R576	1-216-845-11	METAL CHIP 100K 5%	1/16W				
R577	1-216-841-11	METAL CHIP 47K 5%	1/16W				
R578	1-216-845-11	METAL CHIP 100K 5%	1/16W				
R606	1-216-821-11	METAL CHIP 1K 5%	1/16W				
R607	1-216-827-11	METAL CHIP 3.3K 5%	1/16W				
R608	1-216-821-11	METAL CHIP 1K 5%	1/14W				

HI-40 BOARD (2/3) (HI BLOCK)

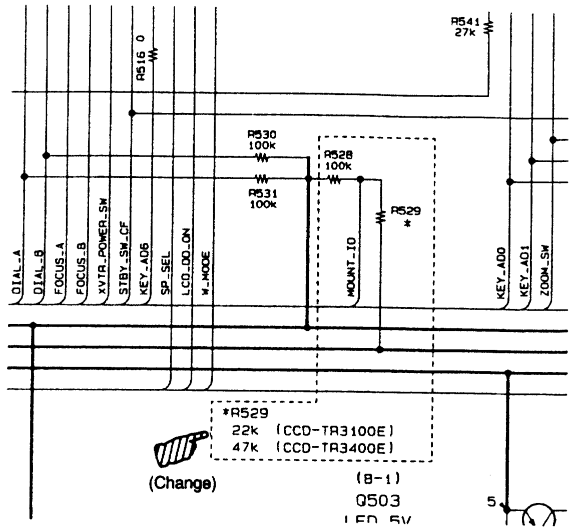
(Page 4-73, Location G-13)


(8-6)
IC1952
MODE CONTROL
IC1952
S579120PZ-TEB

(Change)

HI-40 BOARD (3/3) (CN BLOCK)

(Page 4-76, Location E-11)


R541 27k
R516 0
R530 100k
R528 100k
R531 100k
R529 *
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_POWER_SW
STBY_SW_CF
KEY_AD6
SP_SEL
LCD_DD_ON
W_MODE
MOUNT_ID
KEY_AD0
ZOOM_SW
*R529
22k (CCD-TR3100E)
47k (CCD-TR3400E)
(8-1)
Q503
LED 5V

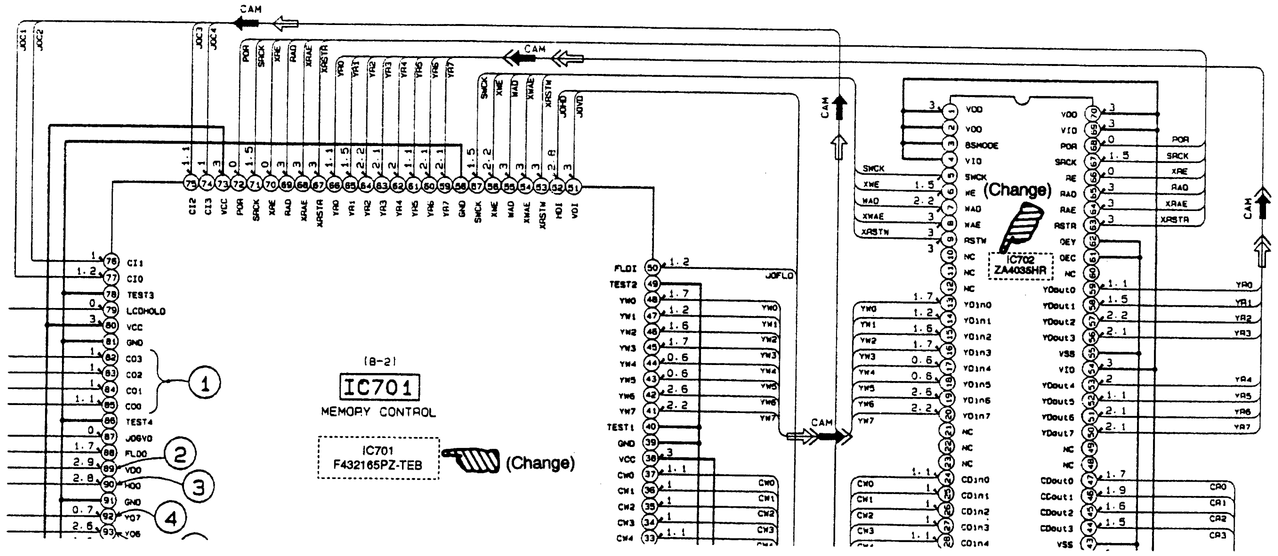
(Change)

CCD-TR3300E			
Ref. No.	Part No.	Description	Remark
IC1952	8-759-399-20	IC S579109PZ-TEB	
R528	1-216-837-11	METAL CHIP 22K 5%	1/16W
R529	1-216-845-11	METAL CHIP 100K 5%	1/16W

CCD-TR3400E			
Ref. No.	Part No.	Description	Remark
IC1952	8-759-457-80	IC S579120PZ-TEB	
R528	1-216-845-11	METAL GLAZE 100K 5%	1/16W
R529	1-216-837-11	METAL GLAZE 22K 5%	1/16W (TR3100E)
R529	1-216-841-11	METAL GLAZE 47K 5%	1/16W (TR3400E)

MM-32 BOARD

(Page 4-79, 80, Location D-9, 15)


CAM
(8-2)
IC701
MEMORY CONTROL
IC701
F432165PZ-TEB
IC702
ZA4035HR
①
②
③
④

(Change)

(Change)

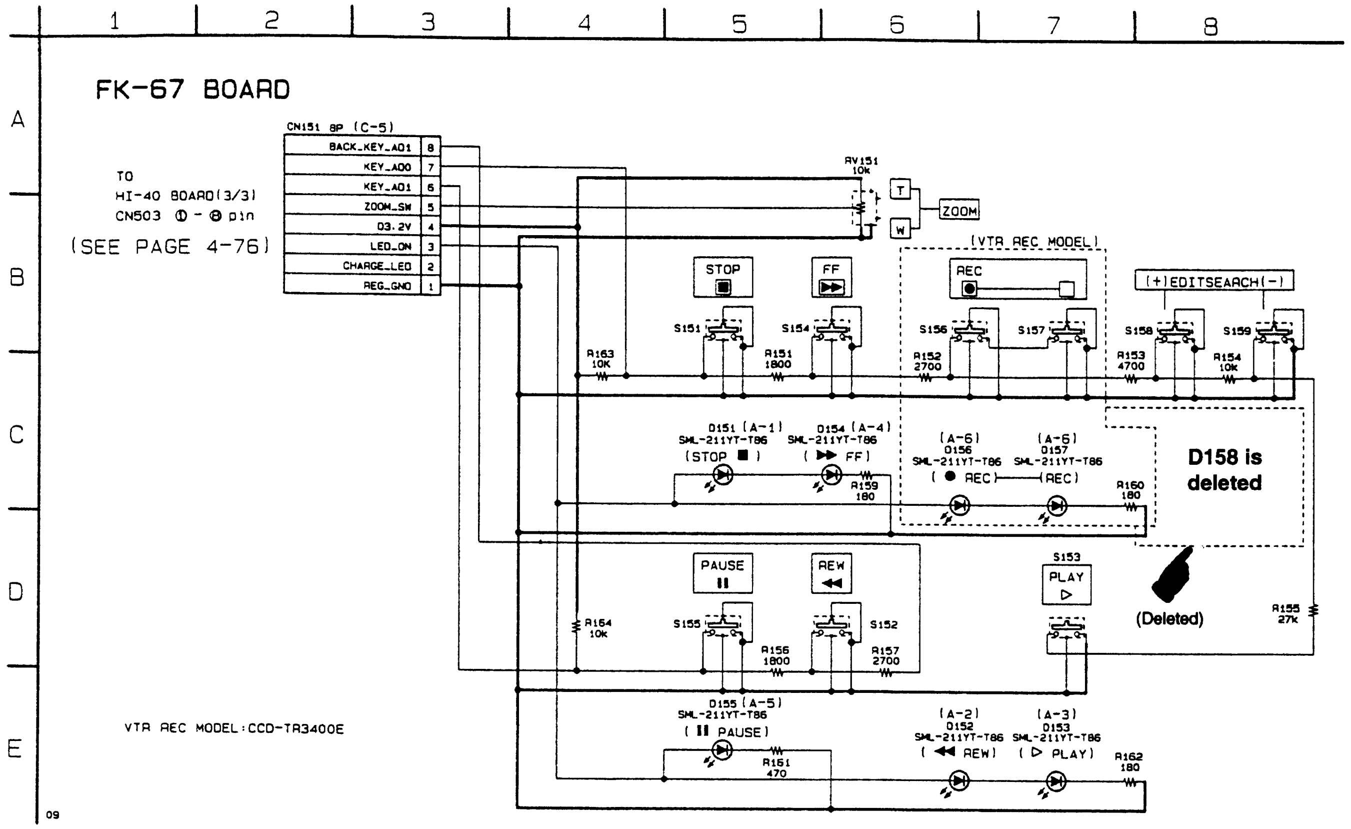
CCD-TR3300E			
Ref. No.	Part No.	Description	Remark
IC701	8-759-380-21	IC F432153PZ-TEB	
IC702	8-759-428-88	IC ZA4038AR-T6	

CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark
IC701	8-759-445-65	IC F432165PZ-TEB	
IC702	8-759-458-00	IC ZA4035HR	

FK-67 BOARD (FUNCTION KEY) SCHEMATIC DIAGRAM

– Ref No. FK-67 BOARD: 3,000 series –

(Page 4-82 – 83)


1
2
3
4
5
6
7
8
A
B
C
D
E
FK-67 BOARD
CN151 8P (C-5)
BACK_KEY_AD1
KEY_AD0
KEY_AD1
ZOOM_SW
D3.2V
LED_ON
CHARGE_LED
REG_GND
TO
HI-40 BOARD(3/3)
CN503 ①-⑧ pin
(SEE PAGE 4-76)
RV151 10K
T
W
ZOOM
(VTR REC MODEL)
STOP
FF
REC
(+)EDITSEARCH(-)
S151
S154
S156
S157
S158
S159
R163 10K
R151 1800
R152 2700
R153 4700
R154 10K
D151 (A-1) SML-211YT-T86 (STOP ■)
D154 (A-4) SML-211YT-T86 (▶▶ FF)
(A-6) D156 SML-211YT-T86 (● REC)
(A-6) D157 SML-211YT-T86 (REC)
R159 180
R160 180
PAUSE
REW
S155
S152
R156 1800
R157 2700
R164 10K
S153
PLAY
R155 27K
D155 (A-5) SML-211YT-T86 (II PAUSE)
R161 470
(A-2) D152 SML-211YT-T86 (◀◀ REW)
(A-3) D153 SML-211YT-T86 (▷ PLAY)
R162 180
VTR REC MODEL:CCD-TR3400E
09

D158 is deleted

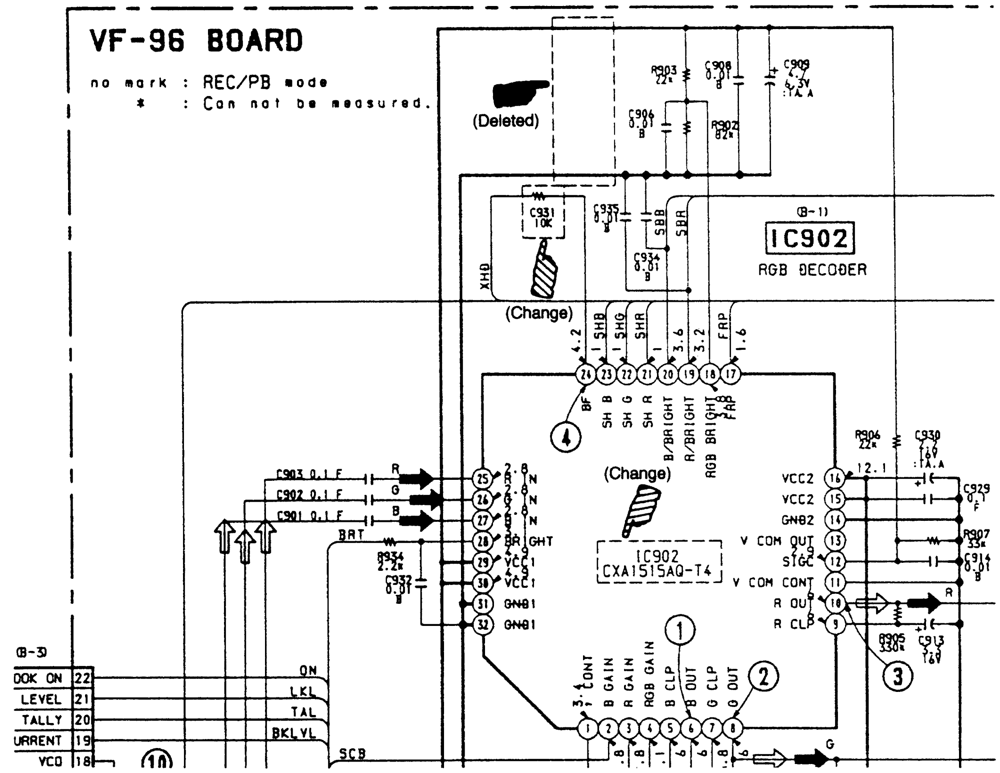
(Deleted)

CCD-TR3300E			
Ref. No.	Part No.	Description	Remark
D158	8-719-057-99	DIODE SML-211YT-T86 (CHARGE)	

CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark
		————————	

VF-96 BOARD

(Page 4-104, Location A-21 – C-21)


VF-96 BOARD
no mark : REC/PB mode
* : Can not be measured.
(Deleted)
(Change)
(Change)
(B-1)
IC902
RGB DECODER
IC902
CXA1515AQ-T4
C931
10K
R903 22k
C908 0.01 B
C909 4.7 6.3V TA A
C906 0.01 B
R902 82k
C935 0.01 B
C934 0.01 B
SBB
SBR
XHD
SHB
SHG
SHR
FRP
BF
SH B
SH G
SH R
B/BRIGHT
R/BRIGHT
RGB BRIGHT
FRP
C903 0.1 F
C902 0.1 F
C901 0.1 F
R
G
B
BRT
R934 2.2k
C932 0.01 B
R IN
G IN
B IN
BRIGHT
VCC1
VCC1
GND1
GND1
VCC2
VCC2
GND2
V COM OUT
SIGC
V COM CONT
R OUT
R CLP
R906 22k
C930 2.2 16V TA A
12.1
C929 0.1 F
R907 33k
C914 0.01 B
R905 330k
C913 2.2 16V
CONT
B GAIN
R GAIN
RGB GAIN
B CLP
B OUT
G CLP
G OUT
(B-3)
DOK ON 22
LEVEL 21
TALLY 20
URRENT 19
VCO 18
ON
LKL
TAL
BKLVL
SCB
①
②
③
④
⑩

CCD-TR3300E				CCD-TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C931	1-164-156-11	CERAMIC CHIP 0.1uF	25V	C931	1-216-833-11	METAL GLAZE 10K 5%	1/16W
IC902	8-752-058-95	IC CXA1515Q-T4		IC902	8-752-080-72	IC CXA1515AQ-T4	
R929	1-216-828-11	METAL CHIP 3.9K 5%	1/16W				
R930	1-216-838-11	METAL CHIP 27K 5%	1/16W				

SECTION 5
REPAIR PARTS LIST

5-1. EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.
- Australian model is abbreviated as AUS.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1-1. CABINET (L) BLOCK ASSEMBLY (Page. 5-1)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
16	X-3945-930-1	LS (UPPER) ASSY (TR3300E:AEP,UK)		16	X-3946-017-1	LS (UPPER) ASSY (TR3400E)	
16	X-3946-295-1	LS (UPPER) ASSY (TR3300E:AUS,E)		16	X-3947-178-1	LS (UPPER) ASSY (TR3100E)	
* 17	A-7072-699-A	FK-67 (XCR) BOARD, COMPLETE (TR3300E:AUS,E)		* 17	A-7073-041-A	FK-67 (X2RP) BOARD, COMPLETE (TR3100E)	
* 17	A-7072-739-A	FK-67 (XP) BOARD, COMPLETE (TR3300E:AEP,UK)		* 17	A-7072-758-A	FK-67 (XCPE) BOARD, COMPLETE (TR3400E)	
19	X-3945-935-1	BOTTOM ASSY, CABINET		19	X-3946-025-1	BOTTOM ASSY, CABINET	
24	8-917-540-90	REMOCON RMT-715//M SET (TR3300E:AUS,E)		——	————		
25	8-917-541-90	REMOCON RMT-716//M SET (TR3300E:AEP,UK)		25	8-917-593-90	REMOCON RMT-717 SET E	

5-1-2. FRONT PANEL BLOCK ASSEMBLY (Page. 5-2)

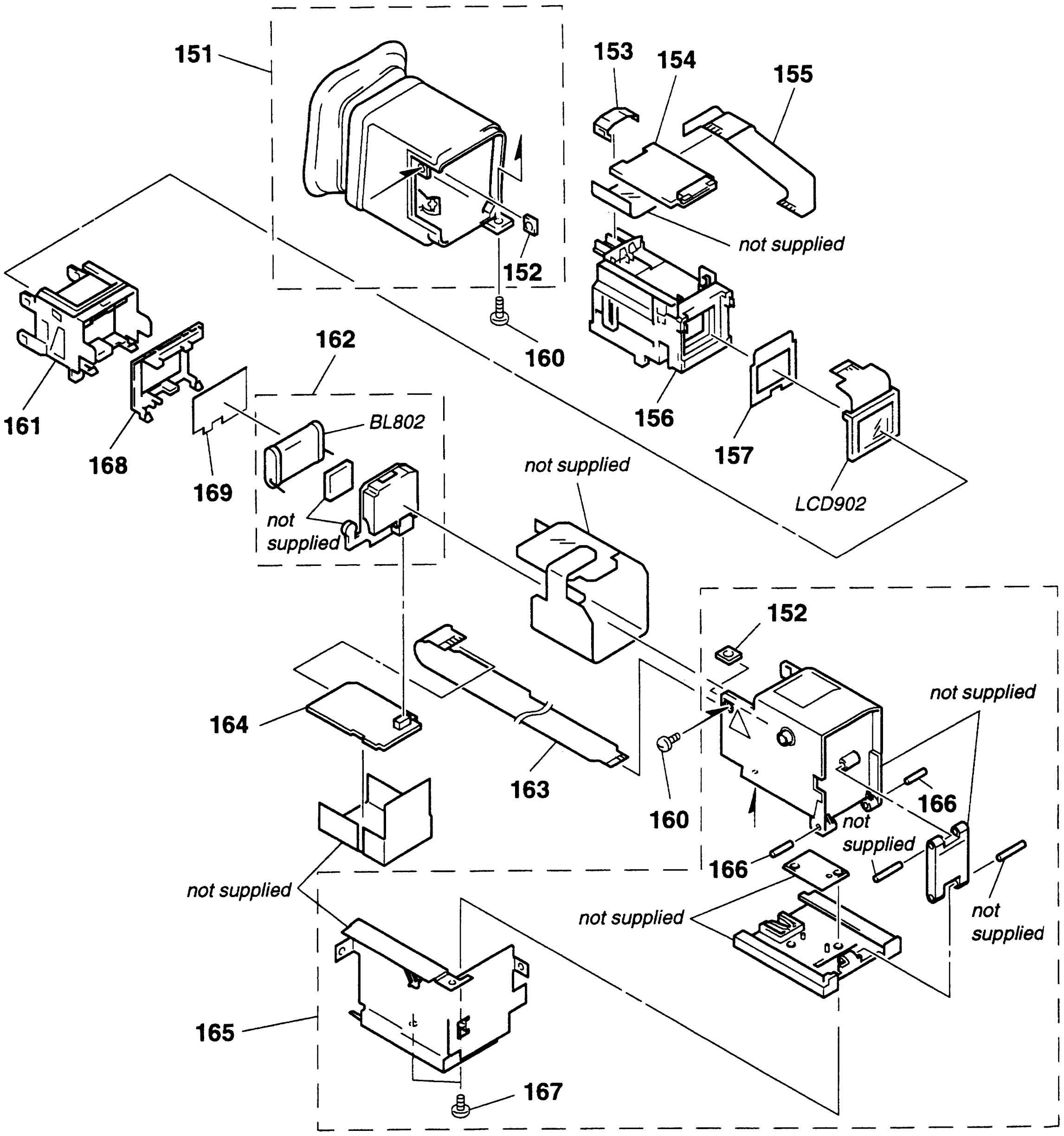
CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3946-426-1	PANEL ASSY, F (TR3300E:AUS,E)		51	X-3947-181-1	PANEL ASSY, F (TR3100E)	
51	X-3946-427-1	PANEL ASSY, F (TR3300E:AEP,UK)		51	X-3947-184-1	PANEL ASSY, F (TR3400E)	

5-1-3. CABINET (R) BLOCK ASSEMBLY (Page. 5-3)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-3946-263-1	CABINET (R) ASSY (TR3300E:AUS,E)		101	X-3947-180-1	CABINET (R) ASSY (TR3100E)	
101	X-3946-293-1	CABINET (R) ASSY (TR3300E:AEP,UK)		101	X-3947-224-1	CABINET (R) ASSY (TR3400E)	

(Page 5-4)

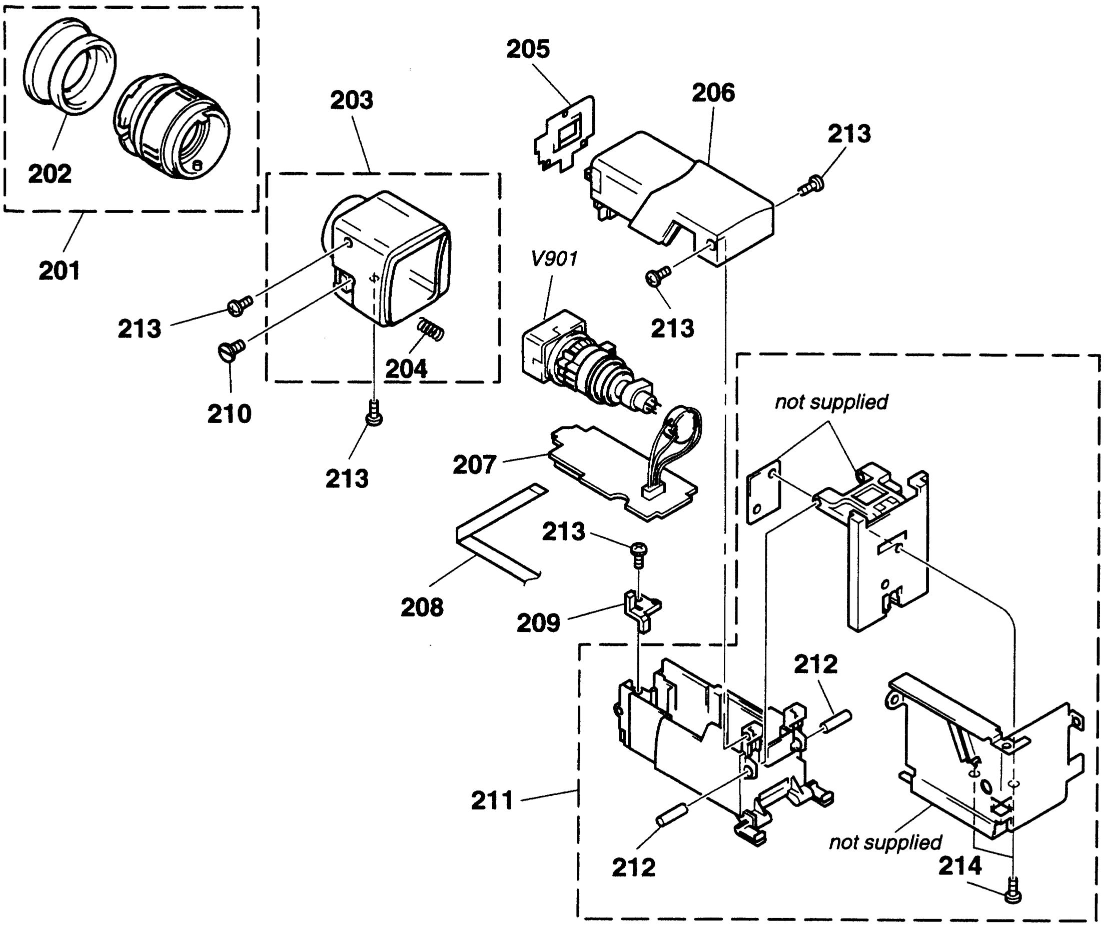
5-1-4. EVF BLOCK ASSEMBLY (COLOR) (TR3400E)


151
153
154
155
not supplied
152
160
162
BL802
161
168
169
not
supplied
not supplied
156
157
LCD902
152
not supplied
164
163
160
166
not
supplied
166
not supplied
not supplied
not
supplied
165
167

Ref. No.	Part No.	Description	Remark
151	X-3946-298-1	CABINET ASSY, EVF(REAR)	
152	3-718-233-01	NUT, PLATE	
* 153	3-969-176-01	COVER, SENSOR	
* 154	A-7073-044-A	VF-96 (X2CRPE) BOARD, COMPLETE	
155	1-660-296-11	FP-420 FLEXIBLE BOARD	
156	X-3946-253-1	LENS ASSY, VF	
157	3-965-056-01	MASK, LCD	
160	3-968-729-01	SCREW (M2), LOCK ACE, P2	
161	X-3946-254-1	HOLDER ASSY, PRISM	
* 162	A-7072-757-A	LB-45 (XCPE) BOARD, COMPLETE	
163	1-660-285-11	FP-386 FLEXIBLE BOARD	
* 164	A-7072-755-A	VF-95 (XCPE) BOARD, COMPLETE	
165	X-3947-183-1	CABINET ASSY, EVF (FRONT)	
166	3-963-817-01	SHAFT (1), TILT	
167	3-719-381-01	SCREW (M2X4)	
168	3-970-381-01	HOLDER, BL	
169	3-970-385-01	PLATE (6460), CONDENSE	
⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH)	
LCD902	8-753-016-07	LCX009AK-4	

(Page 5-5)

5-1-5. EVF BLOCK ASSEMBLY (WHITE/BLACK) (TR3100E)


205
203
206
213
202
201
V901
213
213
210
204
213
207
213
208
209
not supplied
212
211
212
not supplied
214

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
201	X-3944-966-1	FINDER ASSY	
202	3-963-391-01	EYE CUP	
203	X-3946-300-1	CABINET ASSY (W/B), EVF REAR	
204	3-302-492-00	SPRING, COMPRESSION	
205	3-970-774-01	COVER, CRT	
* 206	3-970-776-31	CABINET (UPPER)(W/B), VF	
* 207	A-7066-841-A	VF-104 (XP) BOARD, COMPLETE	
208	1-661-547-11	FP-490 FLEXIBLE BOARD	
209	3-970-775-01	GUIDE (W/B), TALLY LIGHT	
210	3-703-454-41	SCREW (1.7X3), TAPPING	
211	X-3947-179-1	CABINET ASSY (W/B), EVF LOWER	
212	3-963-817-01	SHAFT (1), TILT	
213	3-948-339-01	SCREW, TAPPING	
214	3-719-381-01	SCREW (M2X4)	
⚠V901	1-452-673-31	CRT ASSY	

5-1-6. MAIN BOARDS ASSEMBLY (Page. 5-6)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 255	A-7072-559-A	EZ-21 (HP) BOARD, COMPLETE		——	————		
* 258	A-7072-700-A	MM-32 (XCR) BOARD, COMPLETE		* 258	A-7073-040-A	MM-32 (X2R) BOARD, COMPLETE	
* 260	A-7092-986-A	VC-177 (XCRP) BOARD, COMPLETE	(TR3300E:AEP, UK)	* 260	A-7093-179-A	VC-177 (X2RP) BOARD, COMPLETE	(TR3100E)
* 260	A-7092-987-A	VC-177 (XCRPE) BOARD, COMPLETE	(TR3300E:AUS, E)	* 260	A-7093-181-A	VC-177 (X2CRPE) BOARD, COMPLETE	(TR3400E)
* 264	A-7092-933-A	HI-40 (XCPE) BOARD, COMPLETE		* 264	A-7093-178-A	HI-40 (X2RP) BOARD, COMPLETE	(TR3100E)
——	————			* 264	A-7093-180-A	HI-40 (X2CRPE) BOARD, COMPLETE	(TR3400E)
* 265	A-7092-871-A	DD-87 (XCR) BOARD, COMPLETE		* 265	A-7092-871-A	DD-87 (XCR) BOARD, COMPLETE	(TR3400E)
——	————			* 265	A-7092-916-A	DD-87 (XP) BOARD, COMPLETE	(TR3100E)
266	1-660-298-11	FP-401 FLEXIBLE BOARD		——	————		
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P		CN901	1-774-867-21	CONNECTOR, EXTERNAL (HOT SHOE) 8P	

5-1-7. BATTERY PANEL BLOCK ASSEMBLY AND CCD BLOCK ASSEMBLY (Page. 5-7)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 313	A-7072-693-A	AV-36 (XCR) BOARD, COMPLETE	(TR3300E,AUS,E)	* 313	A-7072-693-A	AV-36 (XCR) BOARD, COMPLETE	(TR3400E)
* 313	A-7072-740-A	AV-36 (XP) BOARD, COMPLETE	(TR3300E,AEP,UK)	* 313	A-7072-740-A	AV-36 (XP) BOARD, COMPLETE	(TR3100E)
J901	1-694-076-21	TERMINAL BOARD, BATTERY (TR3300E)		J901	1-694-076-11	TERMINAL BOARD, BATTERY	

MISCELLANEOUS (Page. 5-35)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
155	1-660-296-11	FP-420 FLEXIBLE BOARD		155	1-660-296-11	FP-420 FLEXIBLE BOARD	(TR3400E)
163	1-660-285-11	FP-386 FLEXIBLE BOARD		163	1-660-285-11	FP-386 FLEXIBLE BOARD	(TR3400E)
——	————			208	1-661-547-11	FP-490 FLEXIBLE BOARD	(TR3100E)
266	1-660-298-11	FP-401 FLEXIBLE BOARD		——	————		
⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH)		⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH)	(TR3400E)
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P		CN901	1-774-867-21	CONNECTOR, EXTERNAL (HOTSHOE) 8P	
J901	1-694-076-21	TERMINAL BOARD, BATTERY (TR3300E)		J901	1-694-076-11	TERMINAL BOARD, BATTERY	
LCD902	8-753-016-07	LCX009AK-4		LCD902	8-753-016-07	LCX009AK-J	(TR3400E)
——	————			⚠V901	1-452-673-31	CRT ASSY	(TR3100E)

ACCESSORIES & PACKING MATERIALS (Page. 5-36)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
⚠	1-764-622-11	ADAPTOR, CONVERSION, 2P (TR3300E:AEP,UK)		—	—		
	3-856-204-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (TR3300E:AEP, UK)			3-859-084-11	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TR3100E)	
	3-856-204-41	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (TR3300E:AEP)			3-859-084-41	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (TR3100E:AEP)	
	3-856-204-51	MANUAL, INSTRUCTION (FRENCH, DUTCH) (TR3300E:AEP)			3-859-084-51	MANUAL, INSTRUCTION (FRENCH, DUTCH) (TR3100E:AEP)	
	3-856-204-61	MANUAL, INSTRUCTION (SWEDISH, PORTUGUESE) (TR3300E:AEP)			3-859-084-61	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TR3100E:AEP)	
	3-856-548-11	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TR3300E:AUS, E)			3-859-343-11	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TR3400E)	
	3-856-548-21	MANUAL, INSTRUCTION (FRENCH, GERMAN) (TR3300E:E)			3-859-343-21	MANUAL, INSTRUCTION (FRENCH, GERMAN) (TR3400E:E)	
	3-856-548-31	MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TR3300E:E)			3-859-343-31	MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TR3400E:E)	
	3-856-548-41	MANUAL, INSTRUCTION (CHINESE) (TR3300E:E)			3-859-343-41	MANUAL, INSTRUCTION (CHINESE) (TR3400E:E)	
*	3-971-418-01	INDIVIDUAL CARTON		*	3-970-771-81	INDIVIDUAL CARTON (TR3100E)	
—	—			*	3-975-669-01	INDIVIDUAL CARTON (TR3400E)	
	8-917-540-90	REMOCON RMT-715//M SET (TR3300E:AUS,E)		—	—		
	8-917-541-90	REMOCON RMT-716//M SET (TR3300E:AEP, UK)			8-917-593-90	REMOCON RMT-717 SET E	
⚠	A-7009-240-A	AC-V315 AC POWER ADAPTOR (TR3300E:AEP)		⚠	A-7009-816-A	AC-V316 AC POWER ADAPTOR (TR3100E:AEP)	
⚠	A-7009-241-A	AC-V315 AC POWER ADAPTOR (TR3300E:UK)		⚠	A-7009-235-A	AC-V316 AC POWER ADAPTOR (TR3100E:UK)	
⚠	A-7009-242-A	AC-V315 AC POWER ADAPTOR (TR3300E:E)		⚠	A-7009-234-A	AC-V316 AC POWER ADAPTOR (TR3400E:E)	
⚠	A-7009-243-A	AC-V315 AC POWER ADAPTOR (TR3300E:E, AUS)		⚠	A-7009-237-A	AC-V316 AC POWER ADAPTOR (TR3400E:AUS)	
	A-7092-699-A	CASE (L) ASSY, BATTERY			A-7092-699-A	CASE (L) ASSY, BATTERY (TR3100E)	
—	—			⚠	1-569-008-11	ADAPTOR, CONVERSION 2P (TR3400E:E)	
—	—				1-573-291-11	CONNECTOR, CONVERSION (TR3100E)	
**	HSA-515	HANDYCAM STATION		—	—		
**	HSA-EC1	EDIT STATION		—	—		

SECTION 6
ADJUSTMENTS

6-1. CAMERA SECTION ADJUSTMENTS

1-1-5. Page F Address

(Page 6-7)

Address	Adjustment Data		
	Initial Value		
	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
27	(40) [41]	40	03

(Change)

1-1-6. Page E Address

(Page 6-10)

Address	Adjustment Data		
	Initial Value		
	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
1C	EE	10	10
1D	ED	00	00
1E	FE	EC	EC
50	F8	FA	FA

(Change)

1-2. CAMERA SECTION ADJUSTMENTS

2. Modification of F Page Data

(Page 6-13)

Address	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
27	(40) [41]	40	03

(Change)

3. Modification of E Page Data

(Page 6-14)

Address	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
1C	EE	10	10
1D	ED	00	00
1E	FE	EC	EC
50	F8	FA	FA

(Change)

1-3. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

2. EVR Initial Data Input

(Page 6-24)

Address	CCD-TR3300E	CCD-TR3400E
46	94	D4
47	48	73
4E	78	90
50	50	60

(Change)

6-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

3-1-10. Page D Address

(Add)

(Page 6-45)

Note 4: Addresses: 40 to 63 are not used for CCD-TR3100E.

Address	Adjustment Data		
	Initial Value		
	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
13	AE	01	AE
18	00	00	01
1C	19	99	99
20	00	00	02
21	(42) [84]	42	10
22	33	31	34
27	EA	F9	F9
2E	03	00	00
36	C9	C8	C8
3C	08	05	05
46	94		D4
47	48		73
4E	78		90
50	50		60

(Change)

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

3. Modification of D Page Data

(Page 6-46)

Address	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
13	AE	01	AE
18	00	00	01
1C	19	99	99
20	00	00	02
21	(42) [84]	42	10
22	33	31	34
27	EA	F9	F9
2E	03	00	00
36	C9	C8	C8
3C	08	05	05

(Change)

Sony Corporation
Personal A&V Products Company

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(Osaki East)

CCD-TR2200E/TR2300E/TR3300E
RMT-715/716

SONY

SERVICE MANUAL

AEP Model
UK Model
CCD-TR2200E/TR3300E
E Model
CCD-TR2300E/TR3300E
Australian Model
CCD-TR3300E
Hong Kong Model
Tourist Model
CCD-TR2300E

CORRECTION-1

Please correct your Service Manual
(96-035)

SECTION 6 ADJUSTMENT

☞ : indicated additional portion

☞ : indicated changed portion

Page 6–15

5. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically. If it is not adjusted correctly, it will be out of focus during auto focusing/ manual focusing.

5-1. Flange Back Adjustment (1)

Adjusting method:

Subject	Flange back adjustment chart (1988mm from the front of the protection glass) (Luminance: 200 ± 50 lux)
Measurement Point Measuring Instrument	Check operations on TV monitor
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

1) Check that at both the zoom lens TELE terminal and WIDE terminal, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Set data: 01 to page: 0, address: 01.
3) Check that the data of page: F, address: 2E to 33, 49 to 4D is the initial value (see table below).

Address	Data	Address	Data
2E	18	49	2D
2F	1B	4A	00
30	C8	4B	00
31	24	4C	00
32	E3	4D	16
33	15		

4) Check that the data of page: 2, address: 02 is 00.
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 15 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
(The adjustment data will be automatically input to page: F, address: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments

1) Turn OFF the main power supply (8.4V)
2) Perform "Flange Back Adjustment (2)".

Page 6–16

5-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

Adjusting Method:

1) Set the IRIS to open. (Use a ND filter)
2) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away (subjects with clear contrast such as buildings, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
3) Set data: 01 to page: 0, address: 01.
4) Check that the data of page: 2, address: 02 is "00".
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 29 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
   (Adjustment data will automatically be input to page: F, addresses: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments

1) Set data: 00 to page: 0, address: 01.
2) Turn OFF the main power supply (8.4V).
3) Perform "Flange Back Check".

9-973-892-91

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Personal A&V Products Company

96L0975-1
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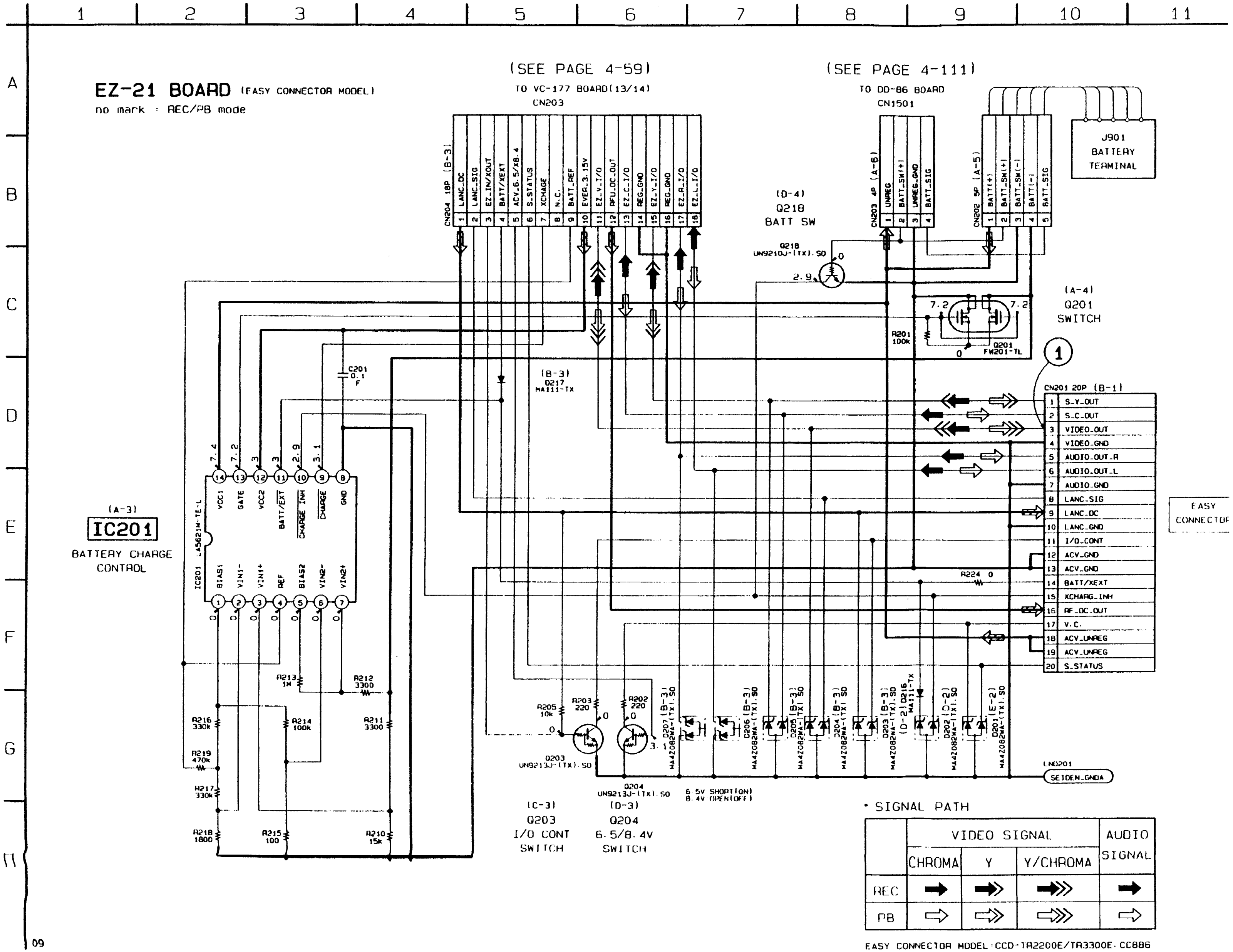
EZ-21 (EASY CONNECTOR) SCHEMATIC DIAGRAM (EASY CONNECTOR MODEL)

— Ref No. EZ-21 BOARD: 6,000 series —

( ): The pages above correspond to SERVICE MANUAL (Original)

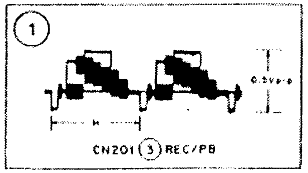

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
EZ-21 BOARD (EASY CONNECTOR MODEL)
no mark : REC/PB mode
(SEE PAGE 4-59)
TO VC-177 BOARD(13/14)
CN203
CN204 18P (B-3)
1 LANC_DC
2 LANC_SIG
3 EZ_IN/XOUT
4 BATT/XEXT
5 ACV_6.5/X8.4
6 S_STATUS
7 XCHAGE
8 N.C.
9 BATT_REF
10 EVER_3.15V
11 EZ_V_I/O
12 RFU_DC_OUT
13 EZ_C_I/O
14 REG_GND
15 EZ_Y_I/O
16 REG_GND
17 EZ_R_I/O
18 EZ_L_I/O
(SEE PAGE 4-111)
TO DD-86 BOARD
CN1501
CN203 4P (A-6)
1 UNREG
2 BATT_SW(+)
3 UNREG_GND
4 BATT_SIG
CN202 5P (A-5)
1 BATT(+)
2 BATT_SW(+)
3 BATT_SW(-)
4 BATT(-)
5 BATT_SIG
J901
BATTERY
TERMINAL
(D-4)
Q218
BATT SW
Q218
UN9210J-(TX).SO
0
2.9
(A-4)
Q201
SWITCH
7.2
7.2
R201
100k
0
Q201
FW201-TL
①
CN201 20P (B-1)
1 S_Y_OUT
2 S_C_OUT
3 VIDEO_OUT
4 VIDEO_GND
5 AUDIO_OUT_R
6 AUDIO_OUT_L
7 AUDIO_GND
8 LANC_SIG
9 LANC_DC
10 LANC_GND
11 I/O_CONT
12 ACV_GND
13 ACV_GND
14 BATT/XEXT
15 XCHARG_INH
16 RF_DC_OUT
17 V.C.
18 ACV_UNREG
19 ACV_UNREG
20 S_STATUS
EASY
CONNECTOR
R224 0
C201
0.1
F
(B-3)
D217
MA111-TX
(A-3)
IC201
BATTERY CHARGE
CONTROL
IC201 LA5621M-TE-L
14 VCC1
13 GATE
12 VCC2
11 BATT/EXT
10 CHARGE INH
9 CHARGE
8 GND
1 BIAS1
2 VIN1-
3 VIN1+
4 REF
5 BIAS2
6 VIN2-
7 VIN2+
7.4
7.2
3
3
2.9
3.1
0
R213
1M
R212
3300
R216
330k
R214
100k
R211
3300
R219
470k
R217
330k
R218
1800
R215
100
R210
15k
R205
10k
R203
220
R202
220
0
0
0
3.1
Q203
UN9213J-(TX).SO
Q204
UN9213J-(TX).SO
6.5V SHORT(ON)
8.4V OPEN(OFF)
(C-3)
Q203
I/O CONT
SWITCH
(D-3)
Q204
6.5/8.4V
SWITCH
D207 (B-3)
MA4Z082WA-(TX).SO
D206 (B-3)
MA4Z082WA-(TX).SO
D205 (B-3)
MA4Z082WA-(TX).SO
D204 (B-3)
MA4Z082WA-(TX).SO
D203 (B-3)
MA4Z082WA-(TX).SO
(D-2) D216
MA111-TX
D202 (D-2)
MA4Z082WA-(TX).SO
D201 (E-2)
MA4Z082WA-(TX).SO
LND201
SEIDEN_GNDA

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡>	➡>>	➡
PB	⇨	⇨>	⇨>>	⇨

EASY CONNECTOR MODEL: CCD-TR2200E/TR3300E. CC886

EZ-21 BOARD



CORRECTION

• Note

☞: indicated additional portion

☞: indicated changed portion

☞: indicated deleted portion

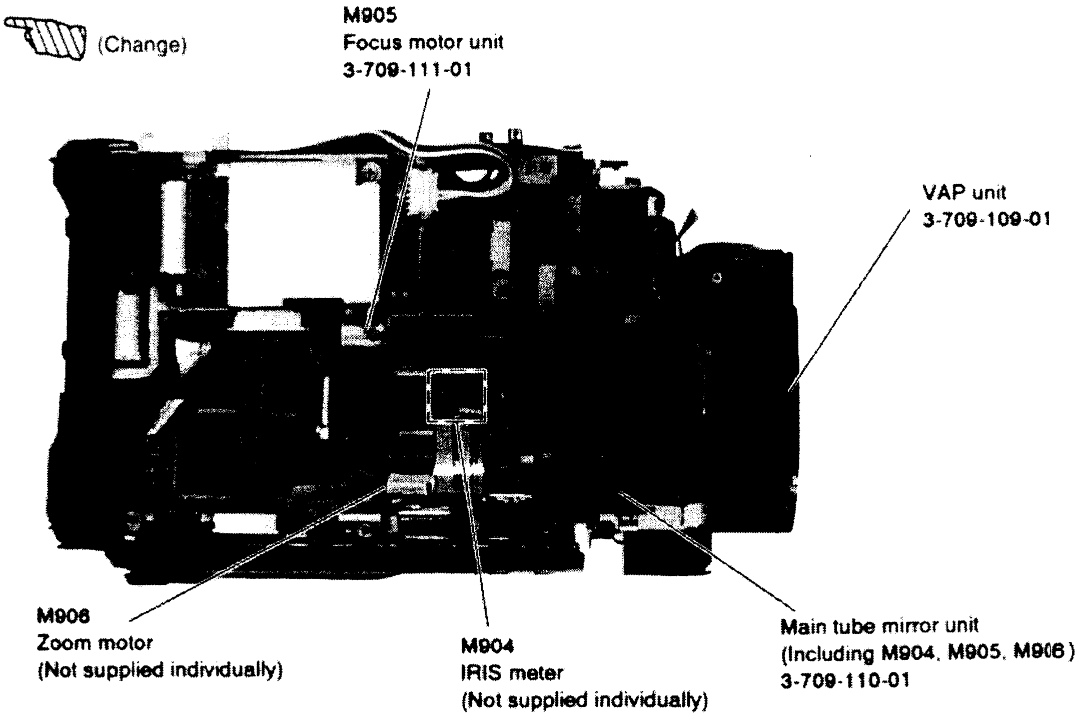
SECTION 2 DISASSEMBLY

2-16. INTERNAL VIEWS

Page 2-9

The photo was turned upside down, it should be corrected as below.

— Right side — ☞ (Change)


M905
Focus motor unit
3-709-111-01
VAP unit
3-709-109-01
M906
Zoom motor
(Not supplied individually)
M904
IRIS meter
(Not supplied individually)
Main tube mirror unit
(Including M904, M905, M906)
3-709-110-01

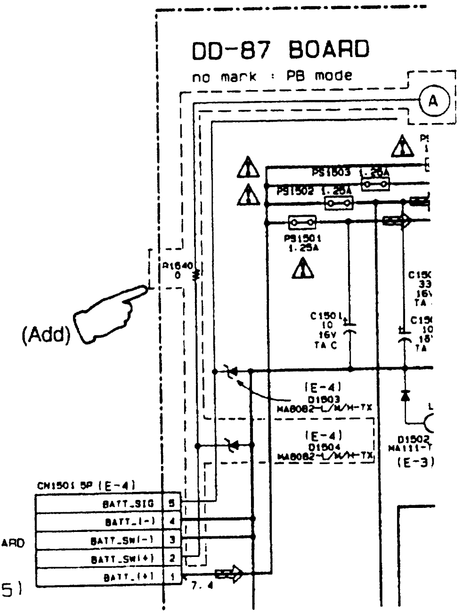
SECTION 4 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

DD-87 (POWER SUPPLY), FP-383 (CONNECTOR) SCHEMATIC DIAGRAM

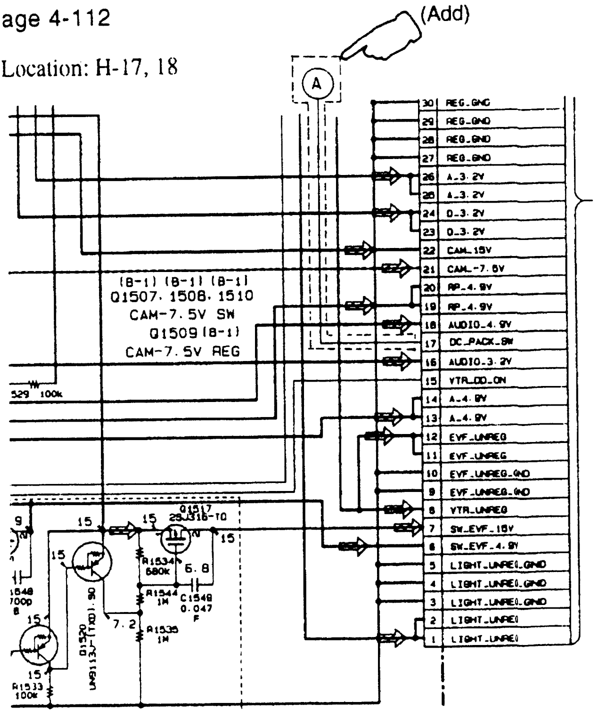
Page 4-111

Location: C-3, 4


DD-87 BOARD
no mark : PB mode
A
PS1503 1.25A
PS1502 1.25A
PS1501 1.25A
R1540 0
(Add)
C1501 10 16V TA C
(E-4) D1503 MA8082-L/M/H-TX
(E-4) D1504 MA8082-L/M/H-TX
D1502 MA111-T (E-3)
CN1501 5P (E-4)
BATT_SIG 5
BATT_(-) 4
BATT_SW(-) 3
BATT_SW(+) 2
BATT_(+) 1
TO EZ-21 BOARD CN203
(SEE PAGE 4-95)
7.4

Page 4-112

Location: H-17, 18


(Add)
A
(B-1) (B-1) (B-1)
Q1507, 1508, 1510
CAM-7.5V SW
Q1509 (B-1)
CAM-7.5V REG
R1529 100k
Q1517 2SJ316-TO
R1534 680k
R1544 1M
C1548 0.047 F
R1535 1M
6.8
7.2
15
9
Q1520 UN9113-J-(TX) 1.90
R1533 100k
30 REG_GND
29 REG_GND
28 REG_GND
27 REG_GND
26 A_3.2V
25 A_3.2V
24 D_3.2V
23 D_3.2V
22 CAM_15V
21 CAM_-7.5V
20 RP_4.9V
19 RP_4.9V
18 AUDIO_4.9V
17 DC_PACK_SW
16 AUDIO_3.2V
15 VTR_DD_ON
14 A_4.9V
13 A_4.9V
12 EVF_UNREG
11 EVF_UNREG
10 EVF_UNREG_GND
9 EVF_UNREG_GND
8 VTR_UNREG
7 SW_EVF_15V
6 SW_EVF_4.9V
5 LIGHT_UNREG_GND
4 LIGHT_UNREG_GND
3 LIGHT_UNREG_GND
2 LIGHT_UNREG
1 LIGHT_UNREG

SECTION 5 REPAIR PARTS LIST

5-2. ELECTRICAL PARTS LIST

Page 5-13

Ref. No	Part No	Description	Remark
D1502	8-719-404-49	DIODE MA111	
D1503	8-719-420-14	DIODE MA8082-M	
D1504	8-719-420-14	DIODE MA8082-M	

(Add)

Page 5-14

Ref. No	Part No	Description	Remark
R1538	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1540	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1543	1-216-845-11	METAL CHIP 100K 5% 1/16W	

(Add)

SECTION 6 ADJUSTMENTS

6-1. CAMERA SECTION

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service tools

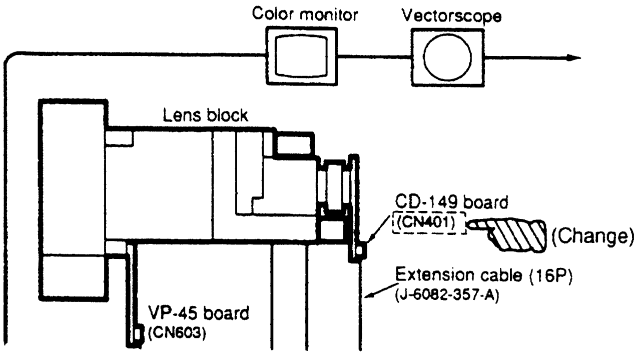
Page 6-1

J-11	Clear chart	J-6080-621-A	
J-12	Extension cable (16P, 0.5 mm)	J-6082-357-A	For extension between the CD-149 board (CN401) and VC-177 board (CN112)

(Change)

1-1-2. Preparations

Page 6-4


Color monitor
Vectorscope
Lens block
CD-149 board
(CN401)
(Change)
Extension cable (16P)
(J-6082-357-A)
VP-45 board
(CN603)

6-3. VIDEO SECTION

3-1-4. Connecting the Equipments

Page 6-35

Note 1: If the VIDEO input is used for adjustments which specify for the S VIDEO input to be used, the product specifications of the unit may not be satisfied in some cases. Be sure to perform according to the specifications.

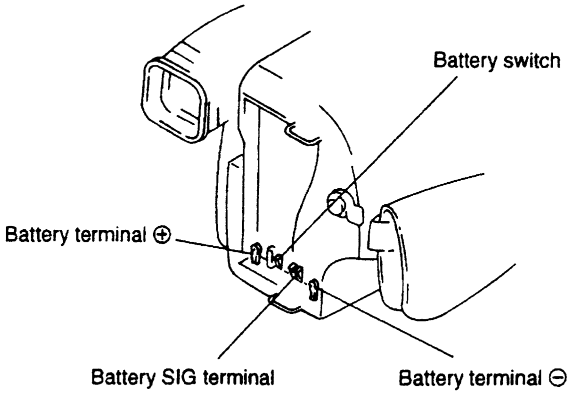
Note 2: When adjustments are performed with the S video output terminal VTR as the signal source, the efficiencies of the unit may be affected by the VTR. It is recommended that a pattern generator with a Y/C separation output terminal be used as much as possible.

Note 3: In the normal state, if the power supply is connected directly to the battery terminal, the power will go off automatically 25 seconds after the Power switch is turned on. (However, the power will not go off if the adjustment remote commander is connected and the ADJ switch is set to "ADJ".)

Set as folows when connecting the power supply directly to the battery terminal to operate it.

1. Press the Battery switch between the battery terminals and fix it in that state using an adhesive tape.
2. Set the power voltage of the stabilized power supply to 8.4 Vdc and connect it to the battery terminal.

(Add)


Battery switch
Battery terminal ⊕
Battery SIG terminal
Battery terminal ⊖

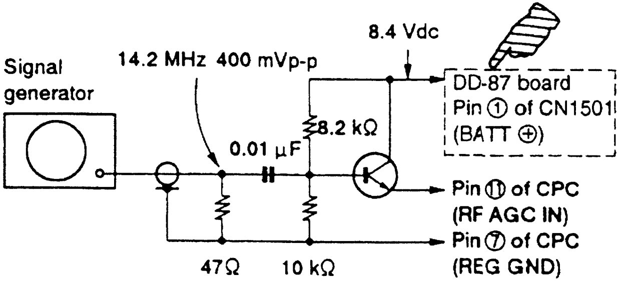
3-4. VIDEO SYSTEM ADJUSTMENTS

5. RP Filter f0 Adjustment (VC-177 board)

Page 6-51

Connection:

1) Input a 14.2 MHz, 400 mVp-p CW signal to Pin ⑪ of CPC of the FP-379 flexible board (RF AGC IN). (Change)


Signal generator
14.2 MHz 400 mVp-p
8.4 Vdc
DD-87 board
Pin ① of CN1501
(BATT ⊕)
8.2 kΩ
0.01 µF
Pin ⑪ of CPC
(RF AGC IN)
Pin ⑦ of CPC
(REG GND)
47Ω
10 kΩ

Transistor: General NPN transistor (2SC403, etc.)

47 Ω resistor:	1-249-401-11
8.2 kΩ resistor:	1-249-428-11
10 kΩ resistor:	1-249-429-11
0.01 µF capacitor:	1-101-004-00

Fig. 6-3-11.

9-973-892-81

Sony Corporation
Personal A&V Products Company

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CCD-TR2200E/TR2300E/TR3300E

RMT-715/716

SONY

SERVICE MANUAL

AEP Model
UK Model
CCD-TR2200E/TR3300E
E Model
CCD-TR2300E/TR3300E
Australian Model
CCD-TR3300E
Hong Kong Model
Tourist Model
CCD-TR2300E

SUPPLEMENT-1

File this supplement-1 with your Service Manual.
(EV-601516)

Subject : 1. Change to EZ-21 board of CCD-TR2200E/TR3300E
2. Correction

- The schematic diagram, printed wiring board and electrical parts list are changed because the charge circuit of EZ-21 board for CCD-TR2200E/TR3300E has changed to IC.

CCD-TR2200E/TR3300E

	OLD	NEW
EZ-21 Board	A-7072-559-A (1-660-356-11)	A-7072-550-A (1-660-356-12)

- 1-660-356- is not supplied.

TABLE OF CONTENTS

SUPPLEMENT

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

- EZ-21 (EASY CONNECTOR) board (EASY CONNECTOR MODEL ONLY) 2

5. REPAIR PARTS LIST

5-2. ELECTRICAL PARTS LIST 5

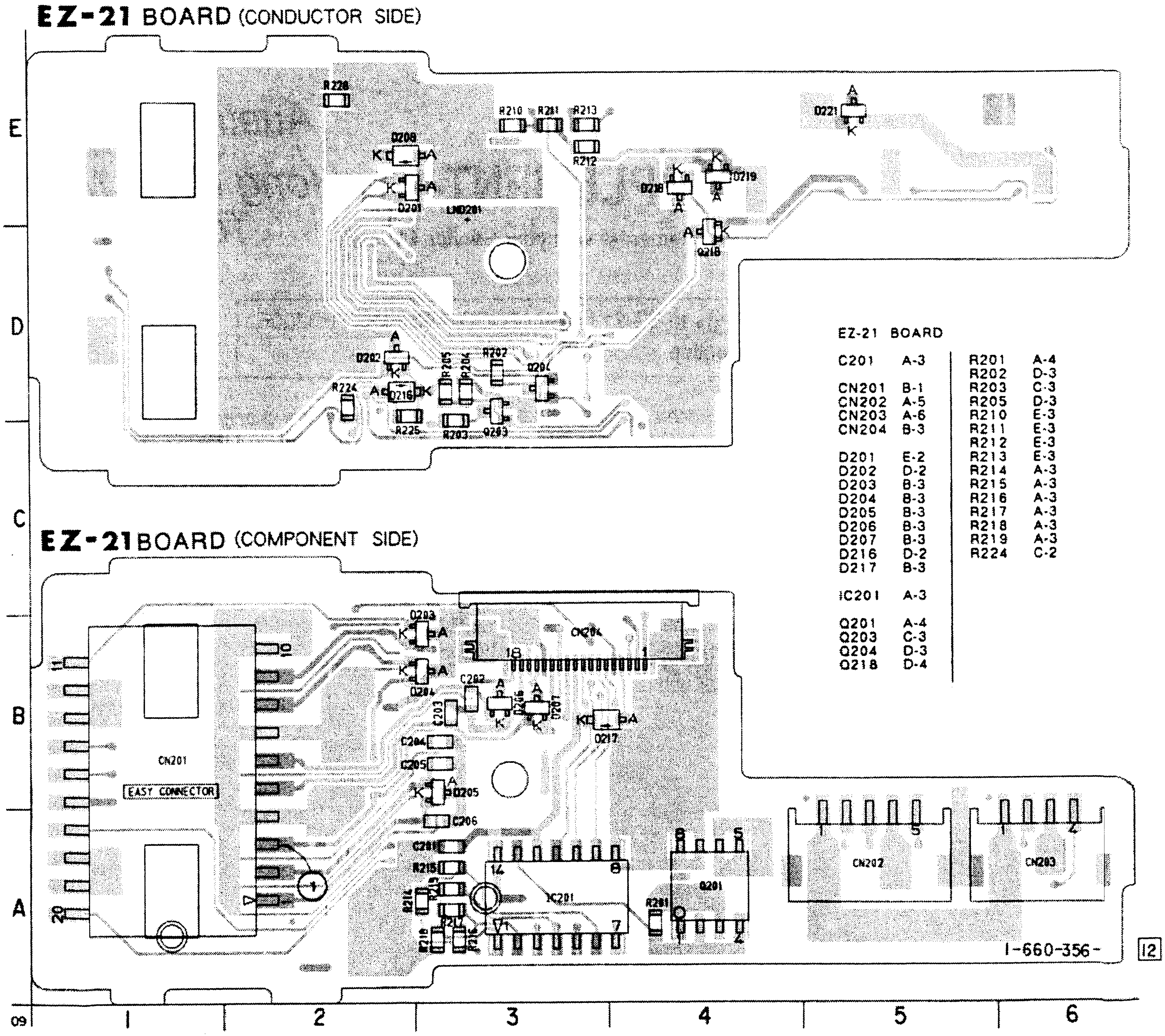
CORRECTION 6

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-2. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS

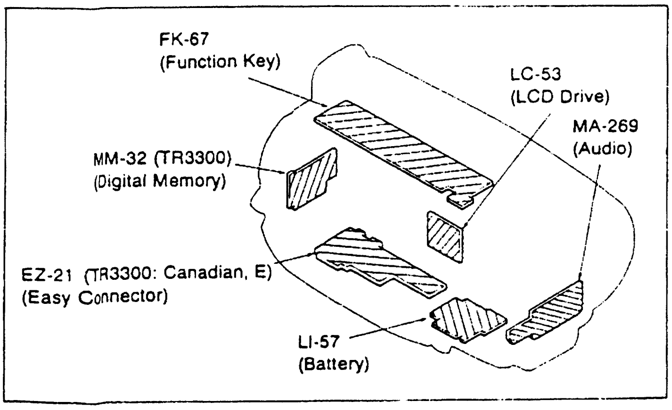
EZ-21 (EASY CONNECTOR) PRINTED WIRING BOARD (EASY CONNECTOR MODEL)

— Ref No. EZ-21 BOARD: 6,000 series —

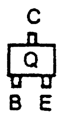

EZ-21 BOARD (CONDUCTOR SIDE)
EZ-21 BOARD (COMPONENT SIDE)
E
D
C
B
A
1
2
3
4
5
6
09
CN201
EASY CONNECTOR
IC201
CN202
CN203
CN204
Q201
1-660-356-
12

EZ-21 BOARD

C201	A-3	R201	A-4
		R202	D-3
CN201	B-1	R203	C-3
CN202	A-5	R205	D-3
CN203	A-6	R210	E-3
CN204	B-3	R211	E-3
		R212	E-3
D201	E-2	R213	E-3
D202	D-2	R214	A-3
D203	B-3	R215	A-3
D204	B-3	R216	A-3
D205	B-3	R217	A-3
D206	B-3	R218	A-3
D207	B-3	R219	A-3
D216	D-2	R224	C-2
D217	B-3		
IC201	A-3		
Q201	A-4		
Q203	C-3		
Q204	D-3		
Q218	D-4		


FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
MM-32 (TR3300)
(Digital Memory)
EZ-21 (TR3300: Canadian, E)
(Easy Connector)
LI-57
(Battery)

- **For printed wiring boards.**
- This board is a four-layer print board. However, the pattens of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

GRUNDIG SERVICE MANUAL

LIVE CAM

D Btx * 32700 #

Service Manual

B-Mechanik

Sach-Nr./Part No.
72010-525.05

Zusätzlich erforderliche Unterlagen für den Komplettservice:

Additionally required Service Manuals for the Complete Service:

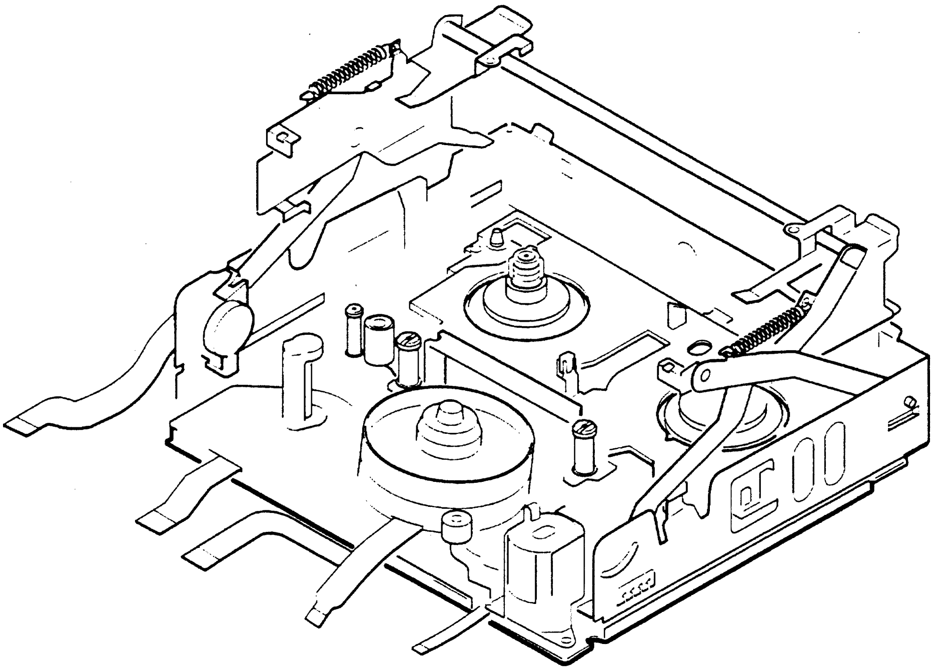
Service Manual

Sicherheit
Safety

Sach-Nr./Part No.
72010-800.00

2604#
1020064

B-Mechanik
B Mechanism



B-Mechanik / B Mechanism

VIDEO 8

VIDEO Hi8

Änderungen vorbehalten
Subject to alteration

Printed in Germany/Japan
VK 21/1 0696

Service Manual Sach-N
Service Manual Part No 72010-525.05

Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Sach-Nummer 72010-800.00, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

⚠

The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 72010-800.00, as well as the respective national deviations.

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- Chassis (2) 0-4
- Laufwerk (3) 0-5

Ersatzteilliste 0-7

Service Manual "B-Mechanik"
Service Manual Ergänzung 1 "B-Mechanik"

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Exploded Views
- Cassette Compartment Block Section (1) 0-3
- LS Chassis Block Section (2) 0-4
- Mechanism Chassis Block Section (3) 0-5

List of Spare Parts 0-7

Service Manual "B Mechanism"
Service Manual Supp"B Mechanism"

Servicehinweise / Service Hints

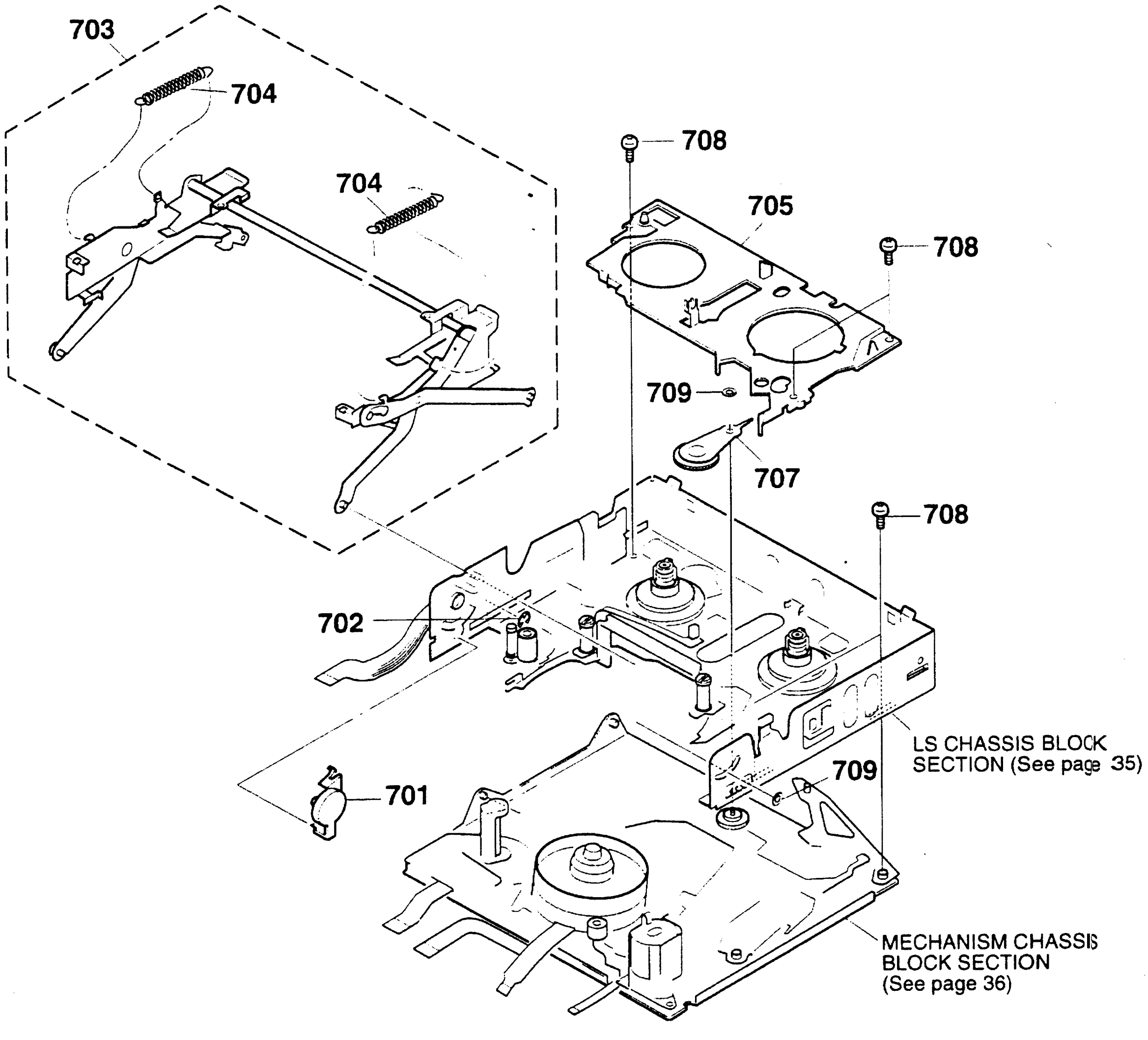
	Gegenstand der Wartung/Prüfung **Maintenance and Inspection Points**	**Betriebsstunden / Operating Hour**										Anmerkungen / Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Bandtrommel reinigen Cleaning of tape running surface	●	●	●	●	●	●	●	●	●	●	Nicht mit Öl in Berührung kommen Take care not to get oily
	Kopfrad reinigen und entmagnetisieren Cleaning and degaussing of Rotary Drum Assy	●	●	●	●	●	●	●	●	●	●	Nicht mit Öl in Berührung kommen Take care not to get oily
Laufwerk / Drive System	Steuerriemen Timing Belt	–	▶	–	▶	–	▶	–	▶	–	▶	Sach-Nr. / Part. No. 75981-345.95
	Antriebswelle Capstan Shaft	–	■	–	■	–	■	–	■	–	■	Vorsicht! Es darf kein Öl auf die Bandlauffläche gelangen. Take great care not to let any oil contact the tape running surface.
	Umschaltgetriebewelle Riemenscheibenachse Change Gear Shaft Relay Pulley Shaft	–	■	–	■	–	■	–	■	–	■	
	Fädelmotor Loading Motor	–	▶	–	▶	–	▶	–	▶	–	▶	Sach-Nr. Part. No. 75981-346.68
Funktionstest / Performance Check	Anomaler Ton Abnormal Sound	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	
	Bandzug messen Tape Hold-back Tension Measurement	–	▶	–	▶	–	▶	–	▶	–	▶	
	Bremssystem Brake System	–	▶	–	▶	–	▶	–	▶	–	▶	
	Auf-/Abwickeldrehmoment messen FWD/RVS Torque Measurement	–	▶	–	▶	–	▶	–	▶	–	▶	

● Reinigen / Cleaning
■ Schmieren / Lubrication
▶ Prüfen / Check

Explosionszeichnungen / Exploded Views

Cassettenschacht (1) / Cassette Compartment Block Section (1)

1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LS CHASSIS BLOCK SECTION (See page 35)
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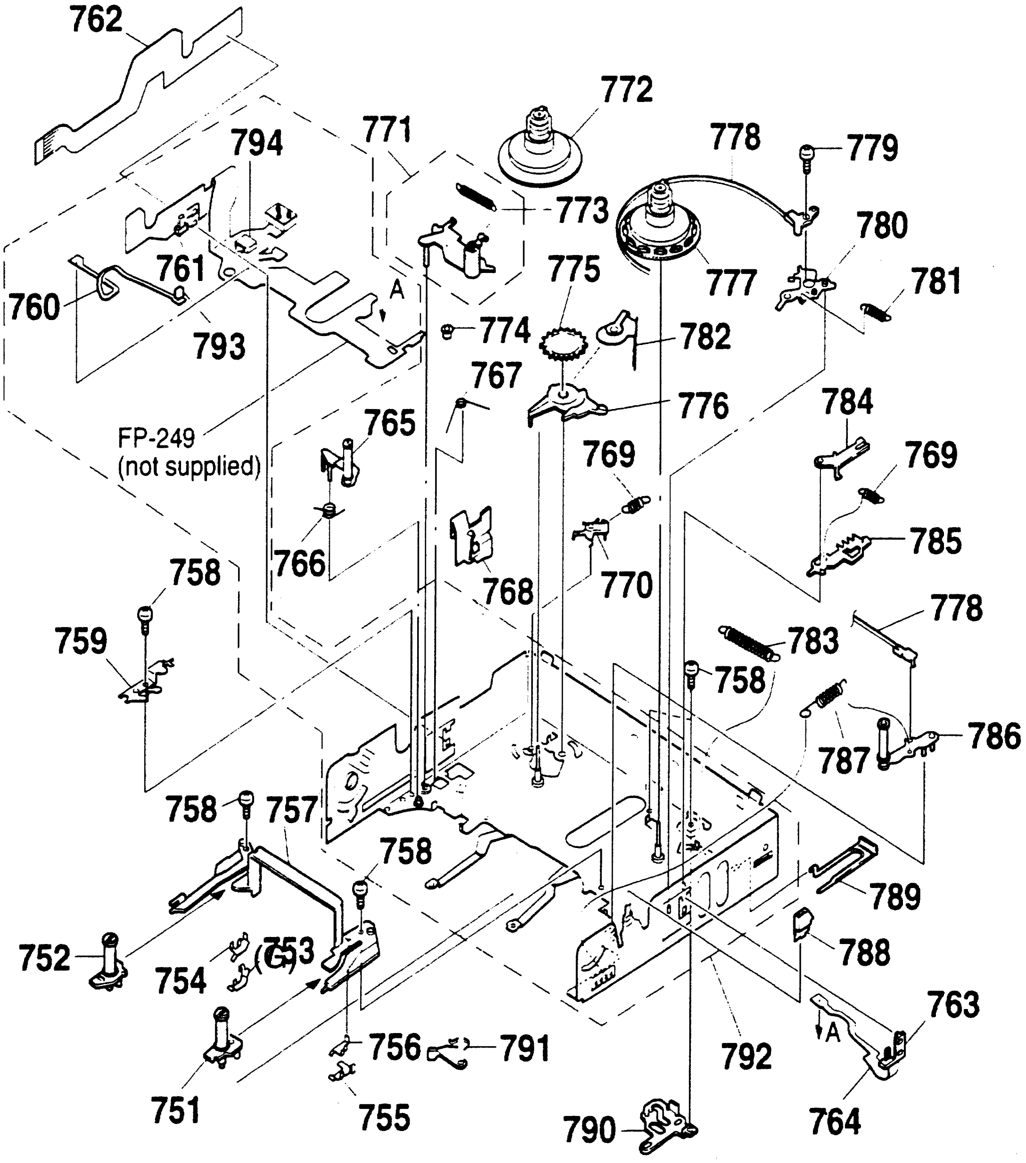
701
MECHANISM CHASSIS BLOCK SECTION (See page 36)

Chassis (2) / LS Chassis Chassis Block Section (2)

2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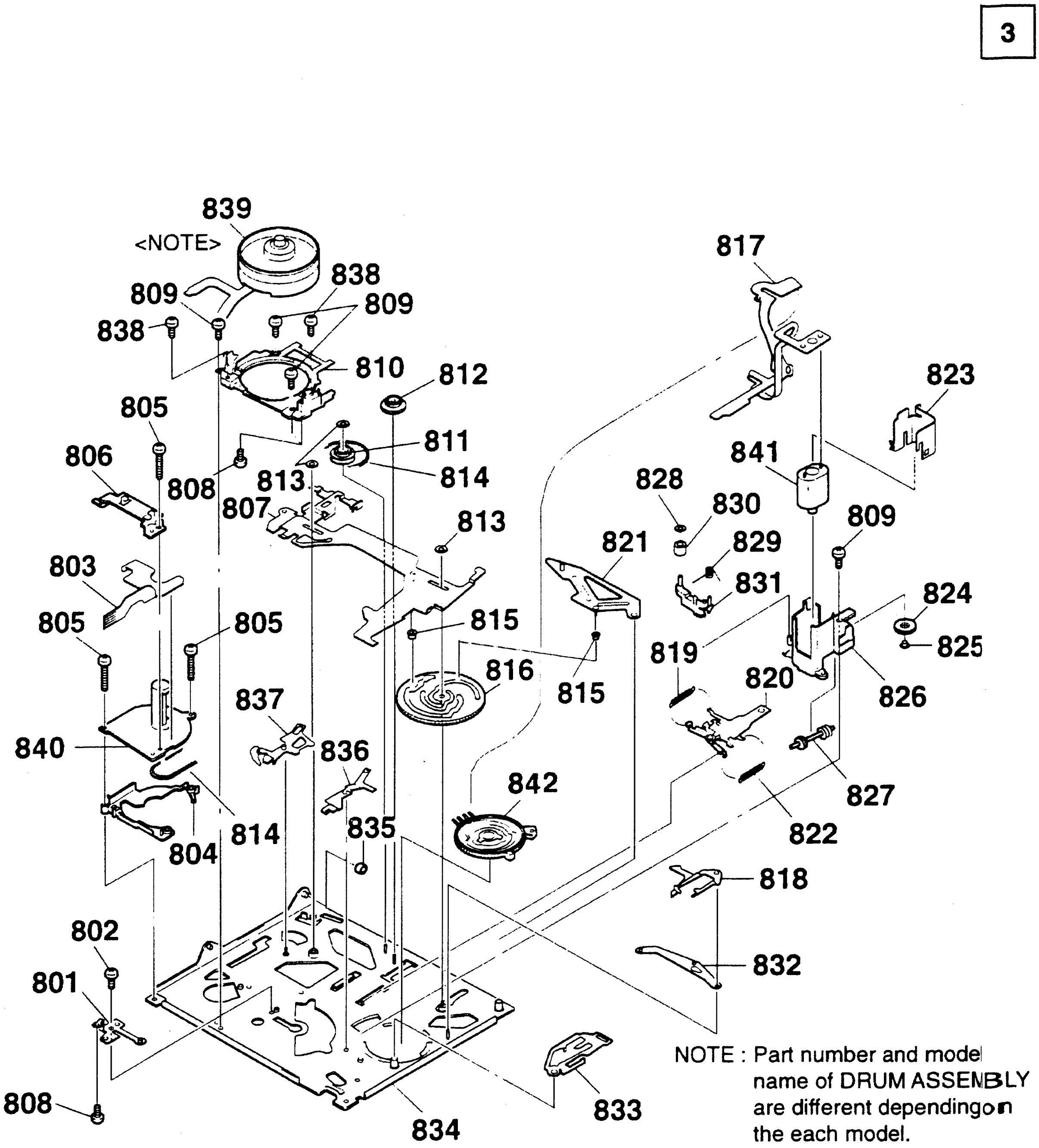
Laufwerk (3) / Mechanism Block Section (3)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NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.

Meßgeräte

Zweikanaloszilloskop	Vektorskop
Digitalmultimeter / Millivoltmeter	Frequenzzähler
Tongenerator	Farbgenerator
Stabilisiertes Netzgerät	Regeltrenntrafo

Beachten Sie bitte unser Meßtechnik-Programm, das Sie unter folgender Adresse erhalten:

Grundig electronics GmbH
Würzburger Str. 150
D-90766 Fürth/Bay.
Tel. 0911/703-0
Telefax 0911/703-4479

Test Equipment

Dual channel oscilloscope	Vectorscope
Digital multimeter / Millivoltmeter	Frequency counter
AF generator	Colour generator
Stabilized power supply	Variable isolating transformer

Please note our Catalog "Test and Measuring Equipment" obtainable from:

Grundig electronics GmbH
Würzburger Str. 150
D-90766 Fürth/Bay.
Tel. 0911/703-0
Telefax 0911/703-4479

B-Mechanik Servicemittel / B Mechanism Service Jigs and Tools

Stück Piece	Bezeichnung Description	Sach-Nr. Part No.	Sony-Nr. Sony No.
1	Öl / FL Oil Grease SG-941	75981-350.07	7-651-000-09
1	Öl / Oil (Mitsubishi Diamond Oil Hydrofluid NT-68)	75987-526.71	7-661-018-18
1	Öl / FL Oil Grease SG-055G	75981-350.08	7-662-001-39
1	Testband / Alignment Tape WR 5-1 CP	75987-561.62	8-967-995-07
1	Bandzugmeßcassette / FWD and RVS winding torque cassette	75987-526.62	J-6080-824-A
1	Schraubendreher für Bandlaufeinstellung / Screwdriver for tape path	75987-536.60	J-6082-026-A
1	Bedieneinheit f. Einstellarbeiten (RM 95B) / Adjustment Remote Control	75987-561.68	J-6082-053-B
1	Aufkleber für Bedienplatte / MD process table label	75981-288.43	J-6082-166-A
1	Spezialeinstellschlüssel / FWD B.T. adjusting driver	75981-350.09	J-6082-187-A
1	Betriebsarten-Schalter 2 / Mode selector 2	75981-350.10	J-6082-282-A
1	Adapterplatte / Change Connector Board	75981-350.11	J-6082-335-A

GRUNDIG Ersatzteilliste
Spare Parts List

LIVE CAM

Ⓓ Btx * 32700 #

B-MECHANIK
B-MECHANISM

POS. NR. POS. NO.	ABB. FIG.	SACHNUMMER PART NUMBER	ANZ. QUA.	BEZEICHNUNG Ⓓ	DESCRIPTION (GB)
0701.000	1	75981-345.42		DAEMPFUNG	DAMPING
0702.000	1	75987-562.74		SICHERUNGSRING	RETAINING RING
0703.000	1	75981-345.43		CASSETTENFACHTEIL KPL.	CASSETTE COMPARTMENT
0704.000	1	75981-350.12		ZUGFEDER	TENSION SPRING
0705.000	1	75981-348.68		STUETZE	SUPPORT
0707.000	1	75981-345.44		ZAHNRAD KPL.	GEAR WHEEL
0709.000	1	75981-328.51		SCHEIBE	WASHER
0751.000	2	75981-345.45		UMLENKROLLE	PIVOTING ROLLER
0752.000	2	75981-345.83		UMLENKROLLE	PIVOTING ROLLER
0753.000	2	75981-345.46		STOPPER	STOPPER
0754.000	2	75981-345.84		STOPPER	STOPPER
0755.000	2	75981-345.47		STOPPER	STOPPER
0756.000	2	75981-350.13		STOPPER	STOPPER
0757.000	2	75981-345.48		FUEHRUNGSZUG	GUIDE RAIL
0759.000	2	75981-345.49		STUETZE	SUPPORT
0760.000	2	75981-345.50		FLEXIBLE PLATTE FP-355	FLEXIBLE BOARD FP-355
0761.000	2	75981-345.51		HALTER SENSOR	HOLDER SENSOR
0762.000	2	75981-345.52		FLEXIBLE PLATTE FP-221	FLEXIBLE BOARD FP-221
0763.000	2	75981-345.53		HALTER SENSOR	HOLDER
0764.000	2	75981-345.54		FLEXIBLE PLATTE FP-356	FLEXIBLE BOARD FP-356
0765.000	2	75981-345.55		UMLENKHEBEL TG4	PIVOTING LEVER
0766.000	2	75981-345.56		FEDER	SPRING
0767.000	2	75981-345.57		FEDER	SPRING
0768.000	2	75981-345.58		FUEHRUNGSRIEGEL	GUIDE LOCK
0769.000	2	75981-345.59		FEDER	SPRING
0770.000	2	75981-348.69		SPERRE	LOCKING
0771.000	2	75981-345.60		ARM KPL.	ARM
0772.000	2	75981-345.61		WICKELTELLER	REEL
0773.000	2	75981-345.62		FEDER	SPRING
0774.000	2	75981-345.63		ROLLE, DRUCK	ROLLER
0775.000	2	75981-345.64		ZAHNRAD	GEAR WHEEL
0776.000	2	75981-345.65		VERRIEGELUNG	LOCK
0777.000	2	75981-345.66		WICKELTELLER	REEL
0778.000	2	75981-345.67		BAND KPL.	TAPE
0780.000	2	75981-345.68		ARM, RVS	ARM
0781.000	2	75981-345.69		FEDER	SPRING
0782.000	2	75981-345.70		FEDER	SPRING
0783.000	2	75981-345.71		FEDER	SPRING
0784.000	2	75981-345.72		SPERRE	LOCKING
0785.000	2	75981-345.73		PLATTE, AUSLOESESPERRE	PLATE RELEASE LOCK
0786.000	2	75981-345.74		ARM KPL.	ARM CPL.
0787.000	2	75981-345.75		FEDER	SPRING
0788.000	2	75981-345.77		OEFFNER	OPENER
0789.000	2	75981-345.78		DECKEL, FUEHRUNG	LID GUIDE
0790.000	2	75981-345.79		PLATTE, CAM	PLATE, CAM
0791.000	2	75981-345.80		ARM, AUSWURF	ARM, EJEKT
0792.000	2	75981-345.81		CHASSIS KPL.	CHASSIS CPL
0793.000	2	75987-536.13		LE DIODE GL 453	LED GL 453
0794.000	2	75981-345.82		SCHALTER	SWITCH
0801.000	3	75981-345.86		SCHAFT	SHAFT
0803.000	3	75981-345.87		FLEXIBLE PLATTE FP-248	FLEXIBLE BOARD FP-248
0804.000	3	75981-345.88		UNTERLAGE, CAPSTAN	SUBSTRATUM
0806.000	3	75981-345.89		HALTER	HOLDER
0807.000	3	75981-345.90		GLEITER KPL.	GLIDER, SLIDER
0810.000	3	75981-345.91		BASISSTUECK	BASE PIECE
0811.000	3	75981-345.92		ZAHNRAD	GEAR WHEEL
0812.000	3	75981-345.93		ZAHNRAD	GEAR WHEEL
0813.000	3	75981-328.51		SCHEIBE	WASHER
0814.000	3	75981-345.94		RIEMEN	BELT
0815.000	3	75981-345.95		ROLLE	ROLLER
0816.000	3	75981-345.96		ZAHNRAD	GEAR WHEEL
0817.000	3	75981-345.97		FLEXIBLE PLATTE FP-220	FLEXIBLE BOARD FP-220
0818.000	3	75981-345.98		PLATTE, REGELUNG	PLATE
0819.000	3	75981-345.99		FEDER	SPRING
0820.000	3	75981-346.50		GLEITER KPL.	GLIDER, SLIDER
0821.000	3	75981-346.51		ARM	ARM
0822.000	3	75981-345.76		FEDER	SPRING
0823.000	3	75981-346.52		ABSCHIRMUNG MOTOR	SCREENING
0824.000	3	75981-346.53		ZAHNRAD	GEAR WHEEL
0825.000	3	75981-346.54		BUCHSE, MOTORHALTER	SOCKET MOTOR HOLDER
0826.000	3	75981-346.55		HALTER, MOTOR	HOLDER MOTOR
0827.000	3	75981-346.56		STANGE	ROD
0828.000	3	75987-527.48		SCHEIBE	WASHER
0829.000	3	75981-346.57		FEDER	SPRING
0830.000	3	75981-346.58		ROLLE	ROLLER
0831.000	3	75981-346.59		ARM KPL.	ARM
0832.000	3	75981-346.60		ARM	ARM
0833.000	3	75981-346.61		PLATTE, REGELUNG	PLATE
0834.000	3	75981-346.62		CHASSIS KPL.	CHASSIS CPL.
0835.000	3	75981-346.63		ROLLE	ROLLER
0836.000	3	75981-346.64		ARM	ARM
0837.000	3	75981-346.65		PLATTE, DRUCK	PLATE, REGULATION
0839.000	3			BANDTROMMERL (SIEHE GERAETE E-LISTE)	TAPE DRUM (SEE VCR SPARE PART)
0840.000	3	75981-346.67		MOTOR, CAPSTAN	MOTOR CAPSTAN
0841.000	3	75981-346.68		LADEMOTOR KPL.	LOADING MOTOR CPL.
0842.000	3	75981-346.69		SCHALTER	SWITCH

Es gelten die Vorschriften und Sicherheitshinweise gemäß dem Service Manual "Sicherheit", Sach-Nummer 72010-800.00, sowie zusätzlich die eventuell abweichenden, landesspezifischen Vorschriften!

⚠ (!)

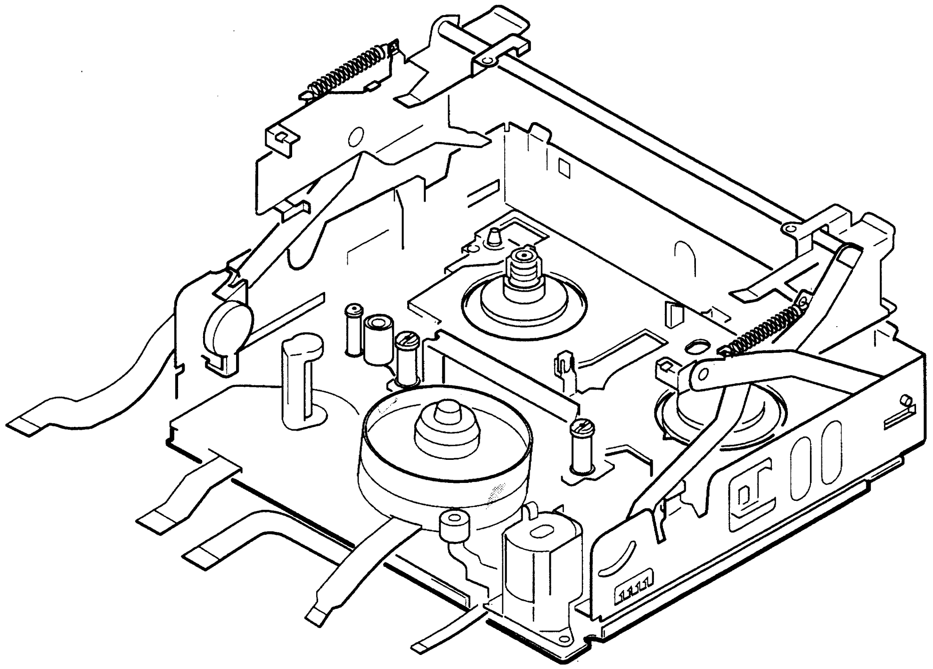
The regulations and safety instructions shall be valid as provided by the "Safety" Service Manual, part number 72010-800.00, as well as the respective national deviations.

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

Use this mechanical adjustment manual Ⅶ together with the service manual of the respective models.



8 MECHANISM DECK

SONY®

MICROFILM

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SUPPLEMENT-1

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.
To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.
The mechanisms are adjusted while set in the $\boxed{\text{USE}}$ mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the $\boxed{\text{USE}}$ mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to $\boxed{\text{USE}}$ mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

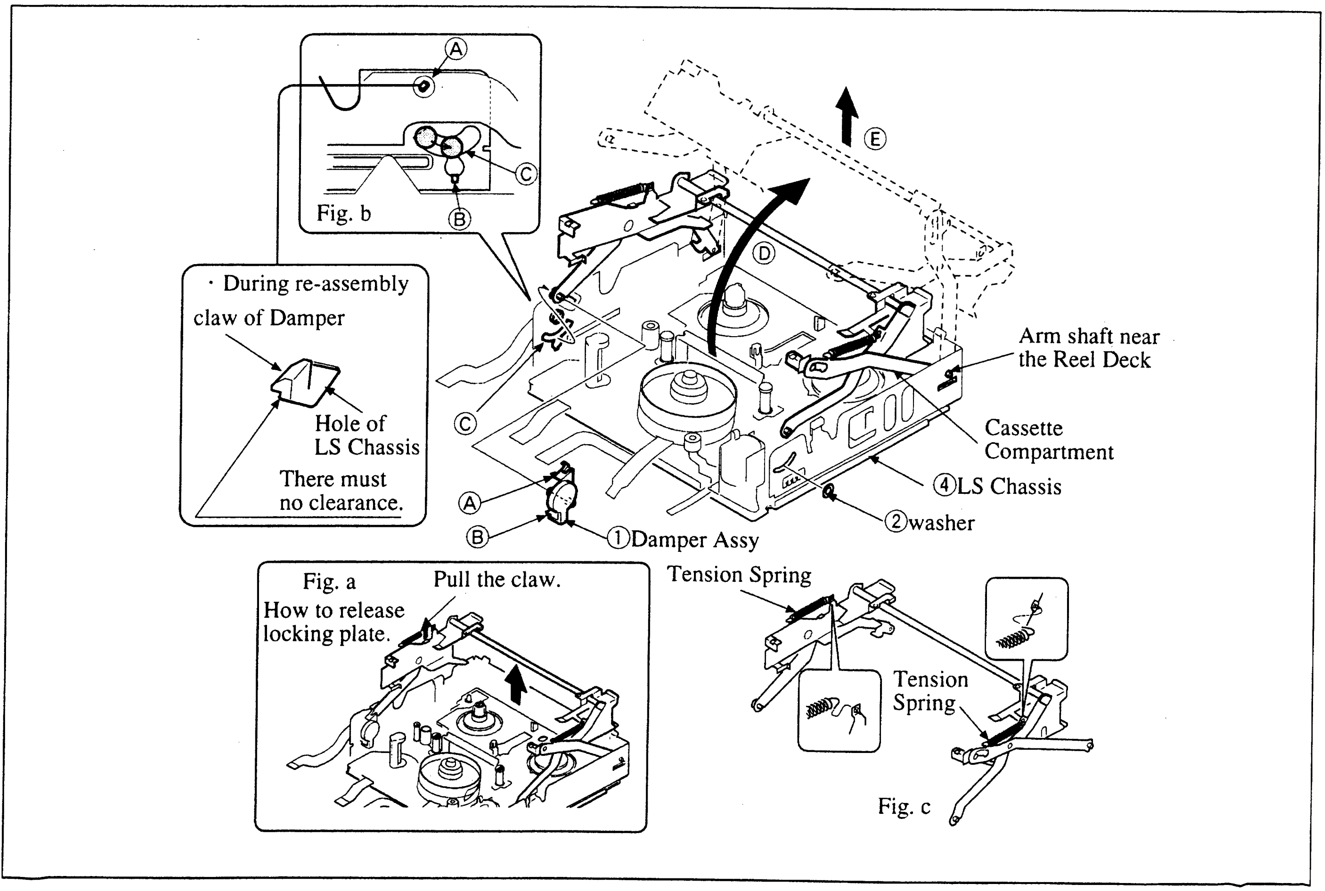

Ⓐ
Ⓒ
Fig. b
Ⓑ
Ⓔ
Ⓓ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Arm shaft near
the Reel Deck
Cassette
Compartment
Ⓒ
④LS Chassis
Ⓐ
Ⓑ
①Damper Assy
②washer
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

> Example of establishing the TEST mode: model CCD-TR420E/TR440E.
> Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.
> Select page: 7, address: 01, set data: 01 and press the PAUSE button.
> After tape loading or other desired operations of mechanism are completed, be sure to perform the following:
> Select page: F, address: 01, set data :00 and press the PAUSE button.
> Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

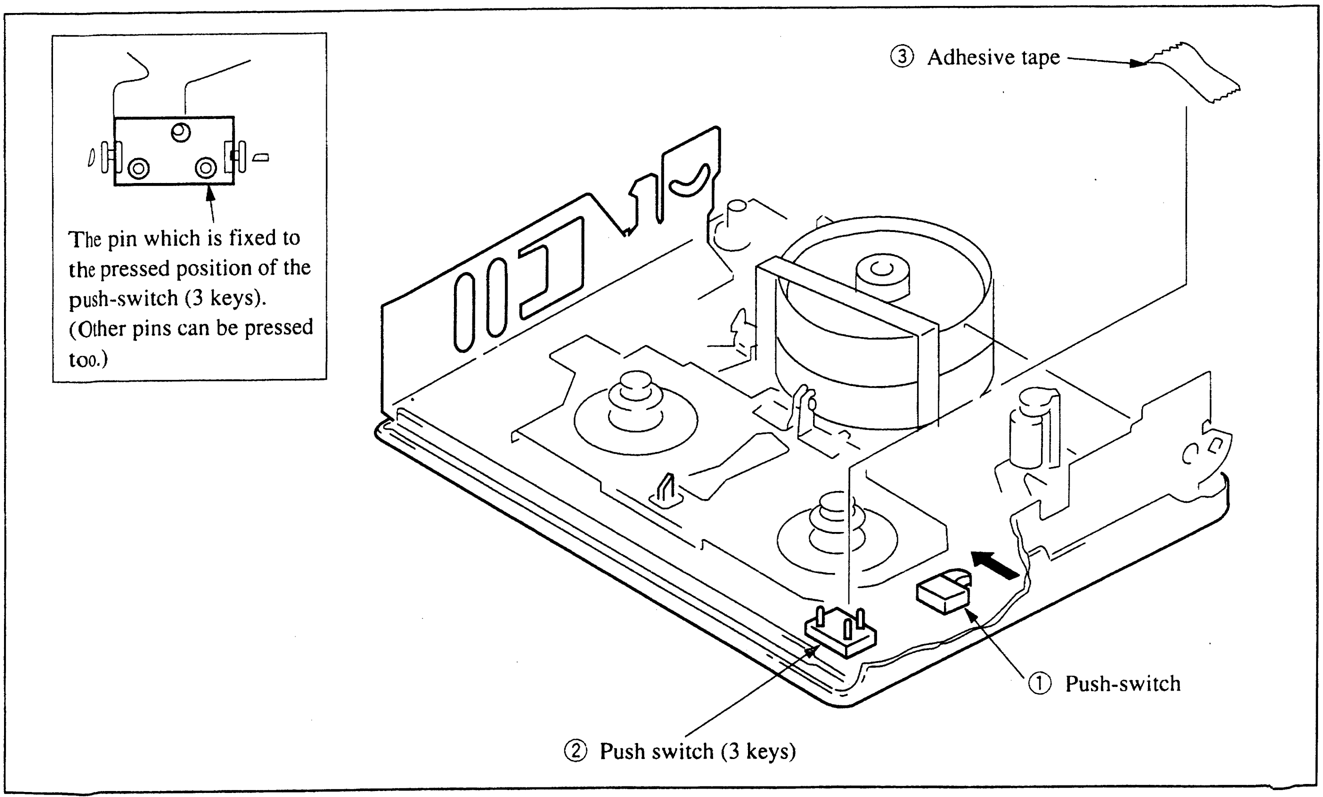

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)
③ Adhesive tape
① Push-switch
② Push switch (3 keys)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

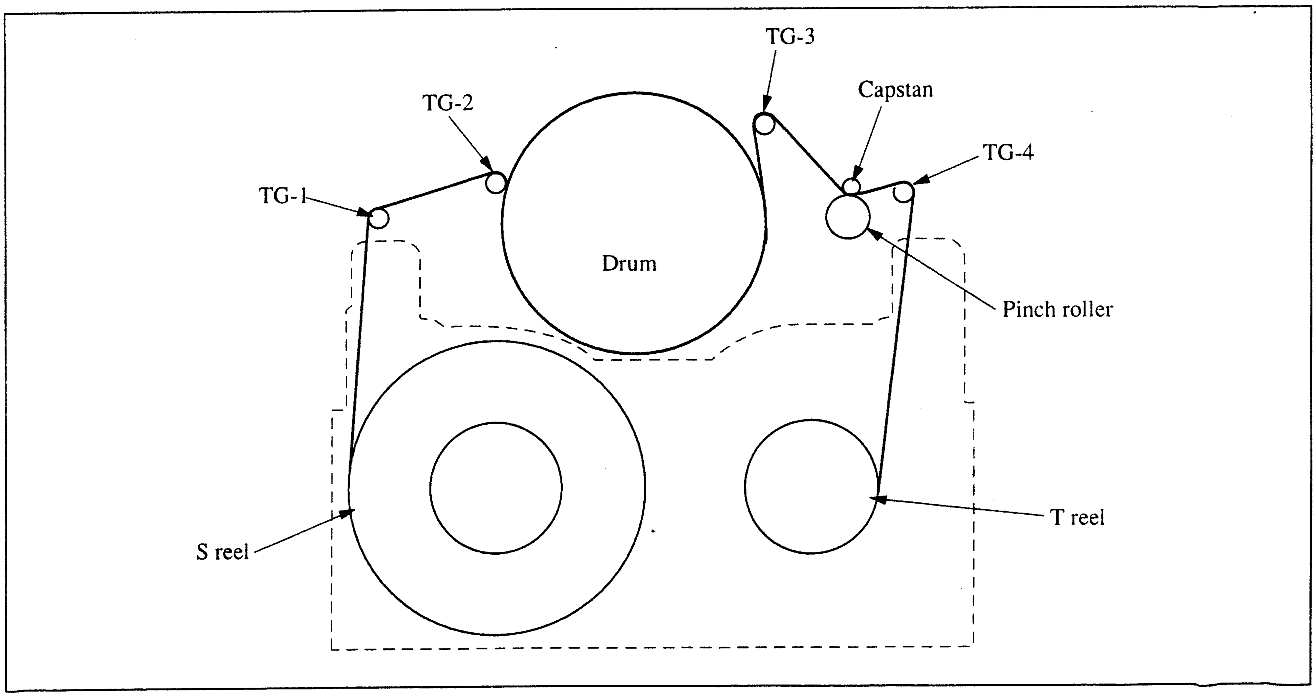


Fig. 3

2-3. Periodic Check Items

Maintenance and Inspection Points		Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD RVS } Torque Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil
- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

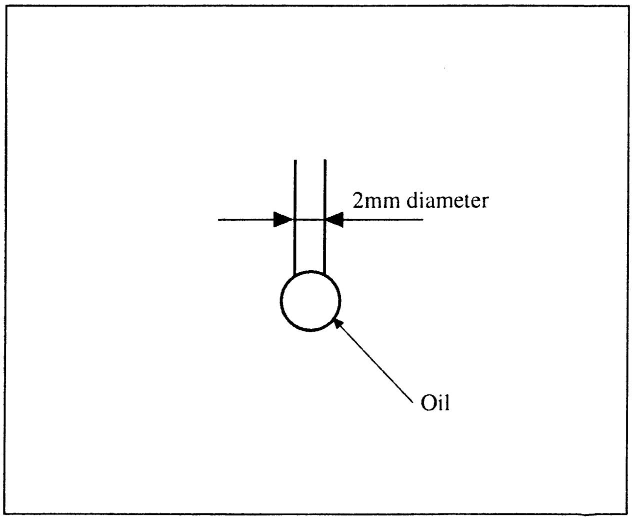


Fig. 4

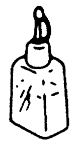
2-4. Service Tool List

Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Cleaning piece	2-034-697-00	—	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		—	
J-4	Head demagnetizer	Commercially available	—	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	—	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	—	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	—	
J-10	Remote commander for adjustment	J-6082-053-B	—	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	—	
J-12	FLOIL Grease SG-941	7-662-001-39	—	
J-13	FLOIL Grease SG-055G	7-651-000-09	—	

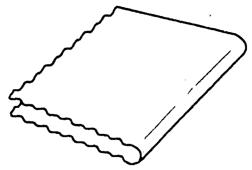
Other equipment

- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

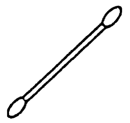
J-1



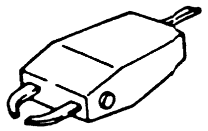
J-2



J-3



J-4



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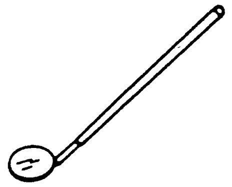
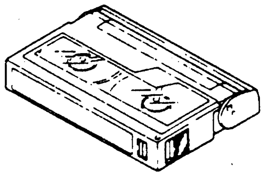
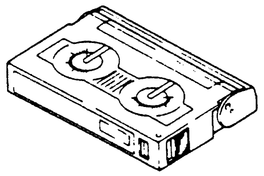


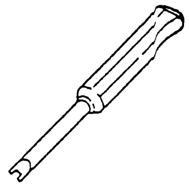
J-6



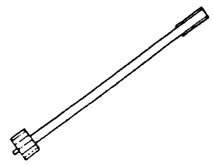
J-7



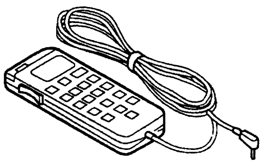
J-8



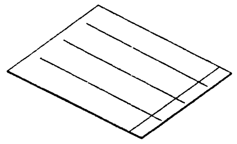
J-9



J-10

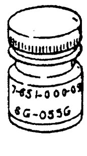


J-11



J-12

J-13



3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

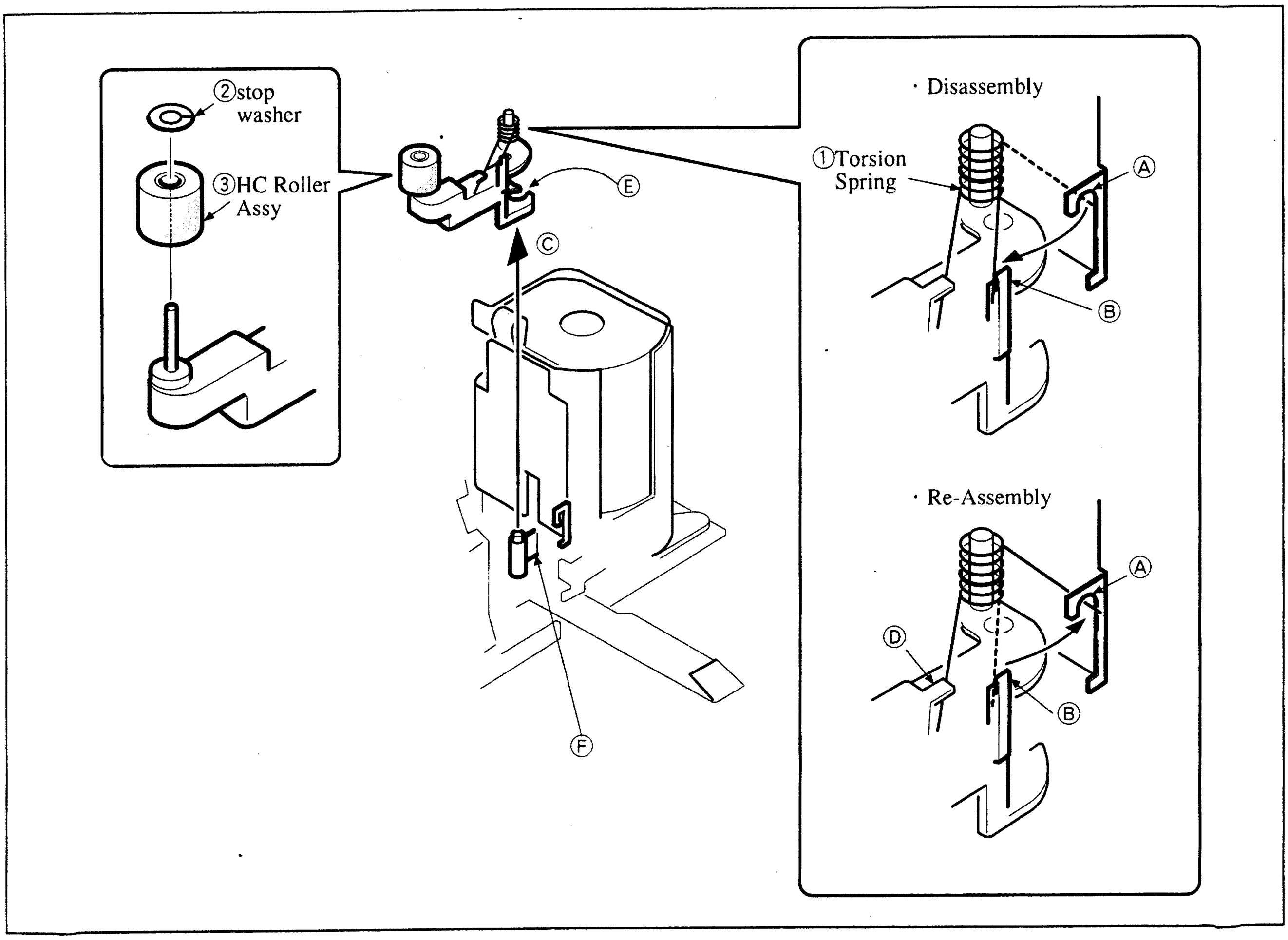

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓓ
Ⓐ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to $\boxed{\text{USE}}$ mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

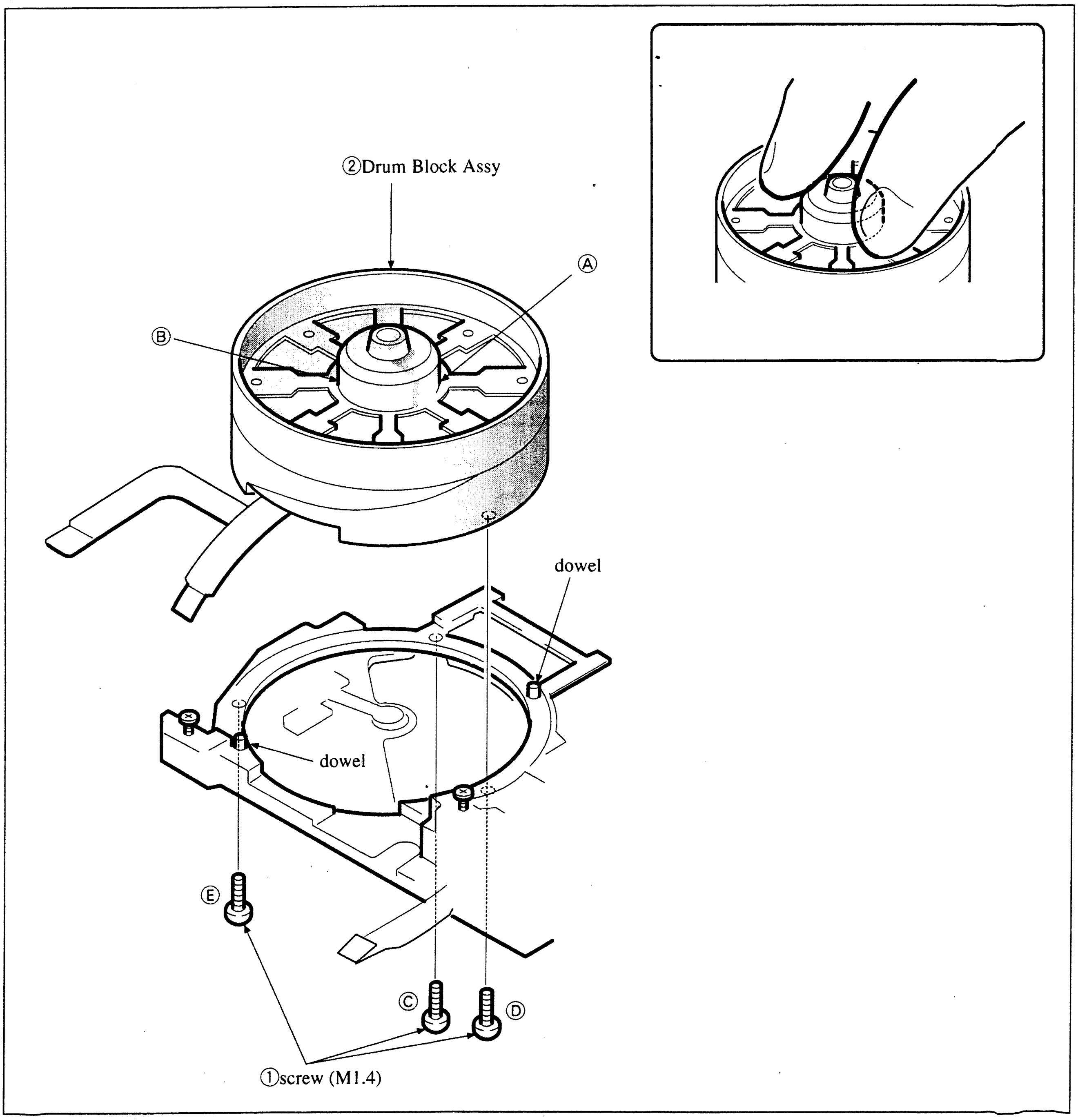


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

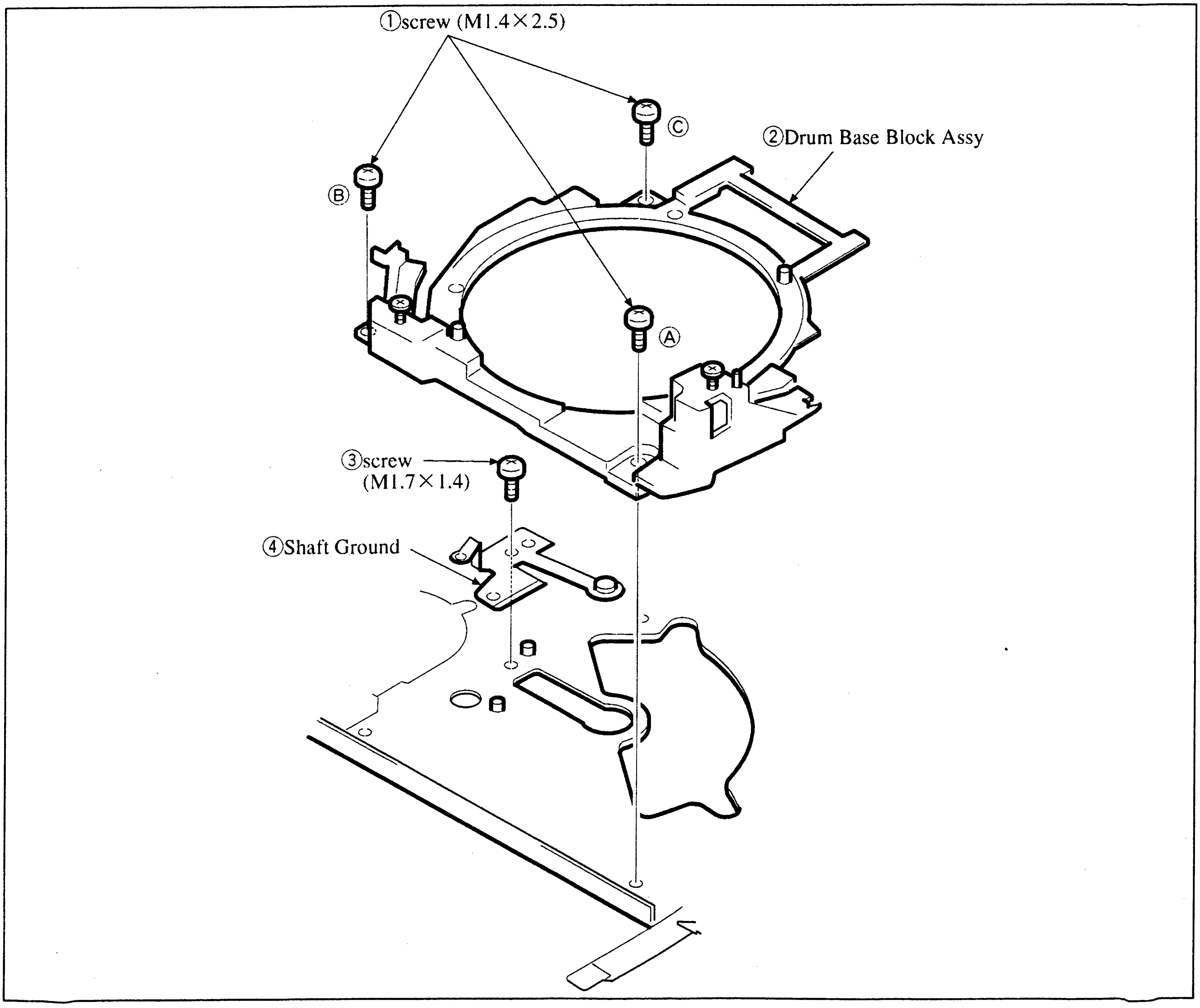


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
   (Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.

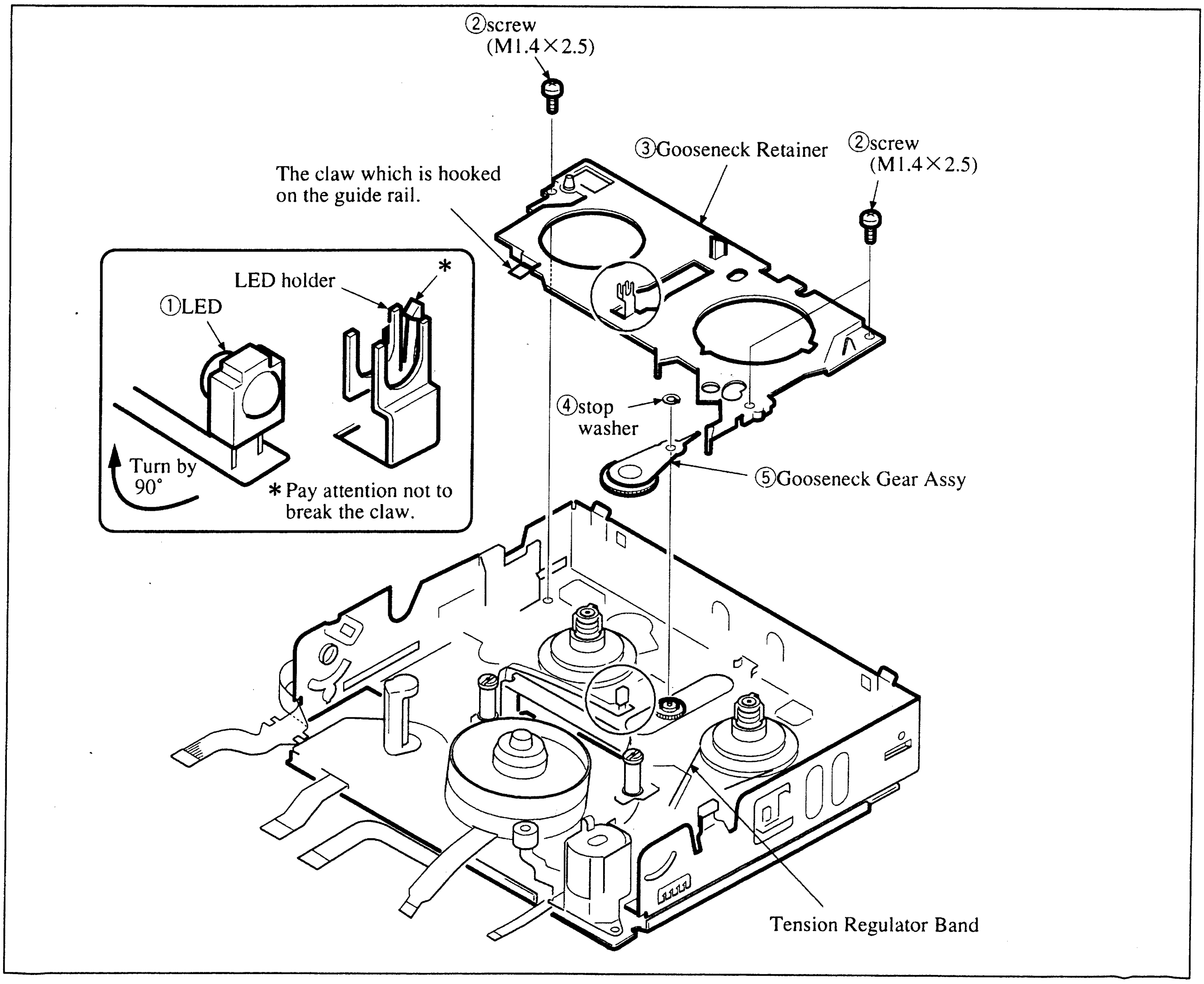

②screw
(M1.4×2.5)
③Gooseneck Retainer
②screw
(M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
Turn by 90°
* Pay attention not to break the claw.
④stop washer
⑤Gooseneck Gear Assy
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ. .

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

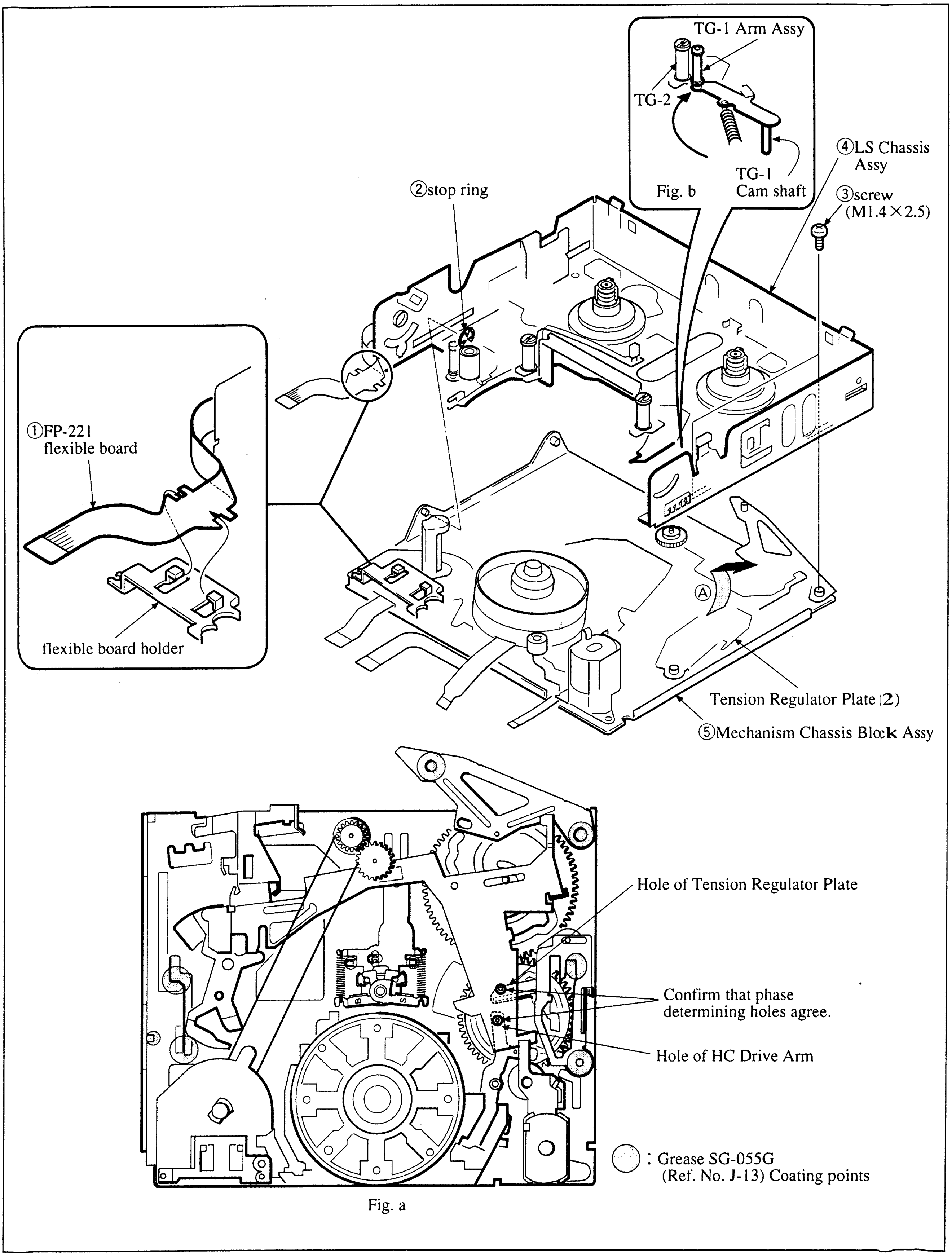

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
Fig. b
④LS Chassis Assy
③screw (M1.4×2.5)
②stop ring
①FP-221 flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase determining holes agree.
Hole of HC Drive Arm
○ : Grease SG-055G (Ref. No. J-13) Coating points
Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**

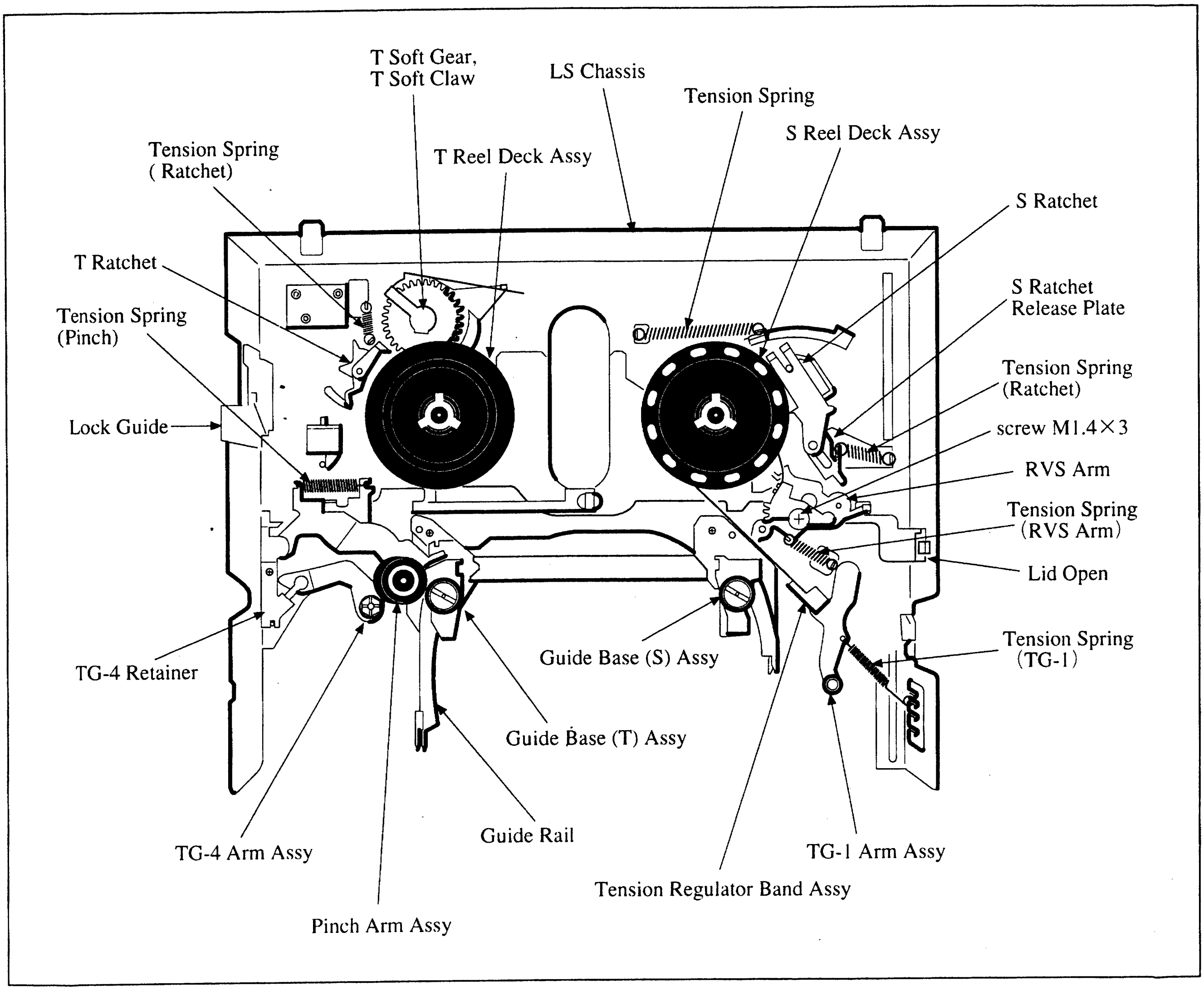

T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
S Ratchet
Release Plate
Tension Spring
(Pinch)
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
Tension Spring
(TG-1)
Guide Base (S) Assy
TG-4 Retainer
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it.
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it.

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

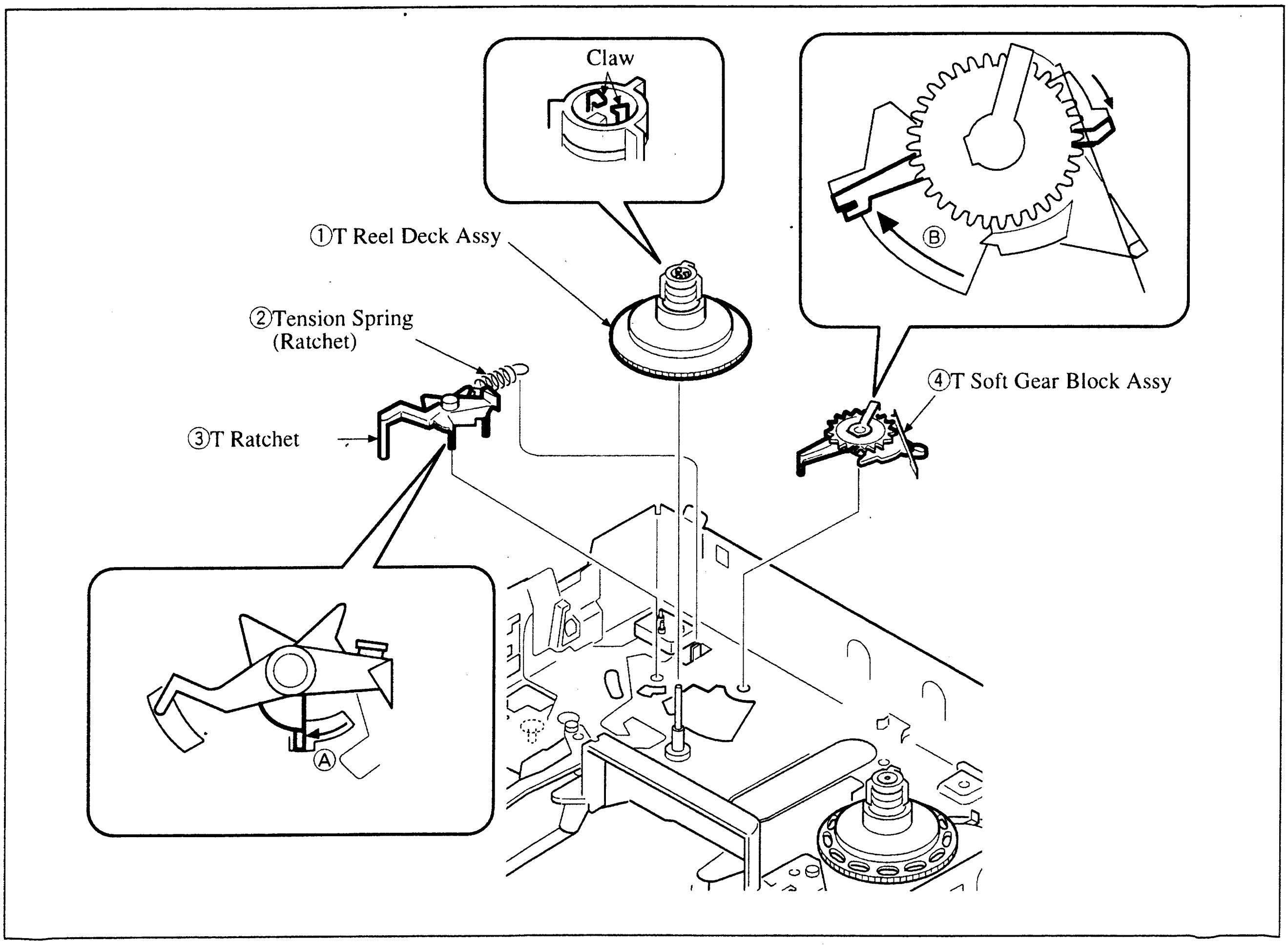


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

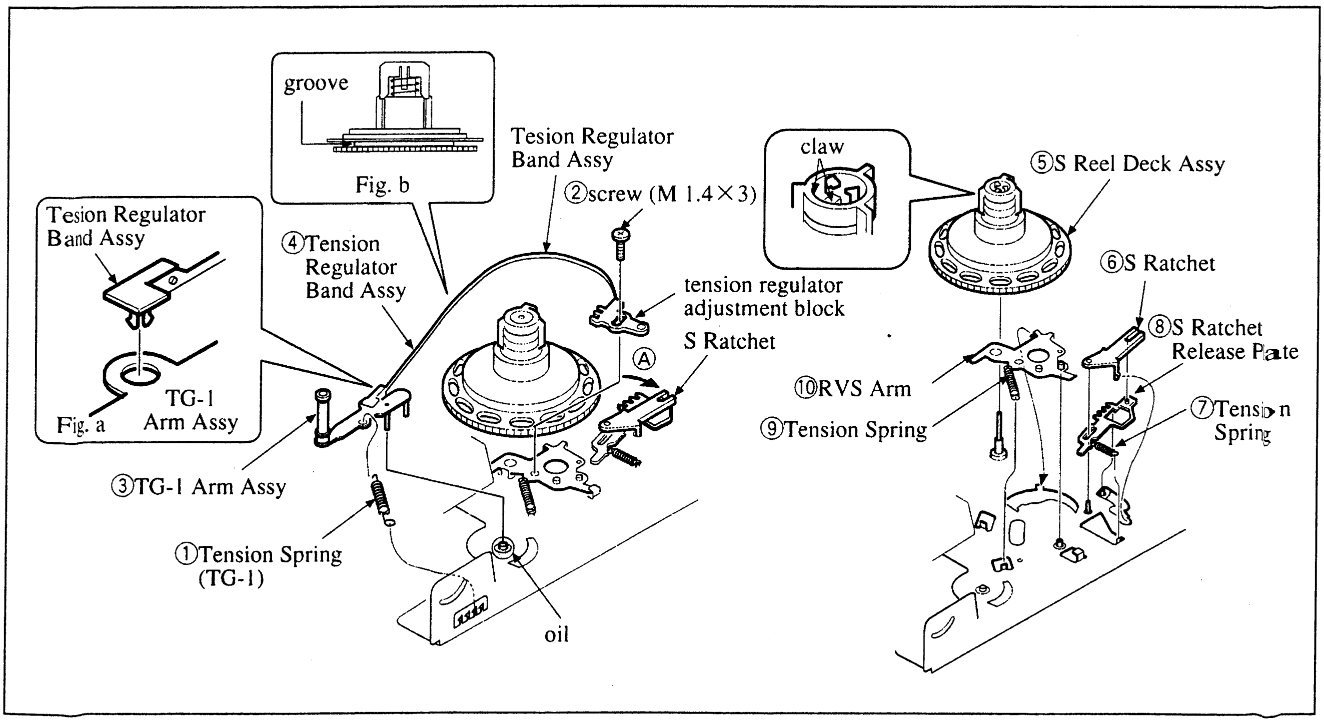

groove
Fig. b
Tesion Regulator
Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
Tesion Regulator
Band Assy
④Tension
Regulator
Band Assy
tension regulator
adjustment block
S Ratchet
Ⓐ
⑥S Ratchet
⑧S Ratchet
Release Plate
⑩RVS Arm
⑨Tension Spring
⑦Tension
Spring
TG-1
Arm Assy
Fig. a
③TG-1 Arm Assy
①Tension Spring
(TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

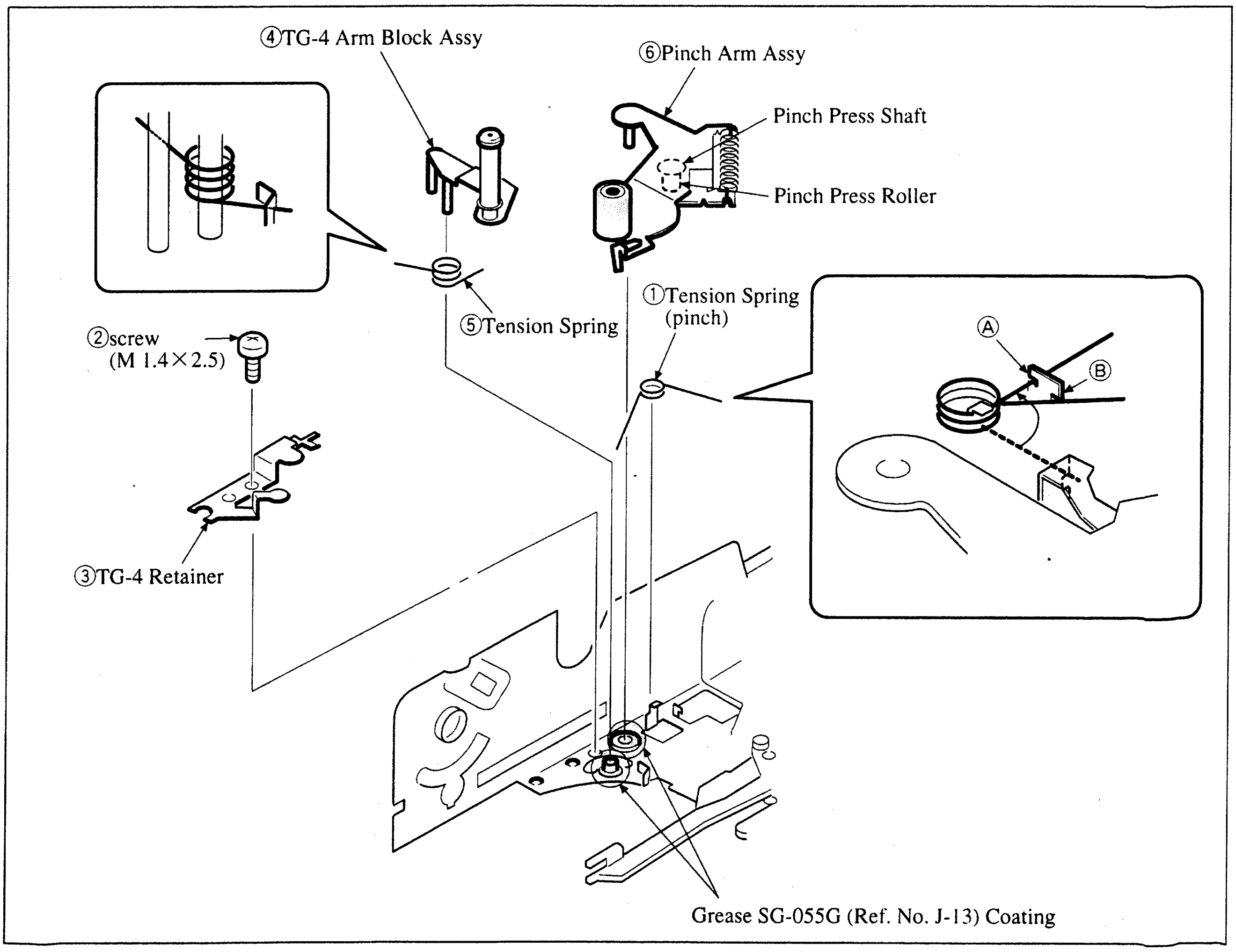

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
⑤Tension Spring
①Tension Spring
(pinch)
Ⓐ
Ⓑ
②screw
(M 1.4×2.5)
③TG-4 Retainer
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide (Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.

   In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.

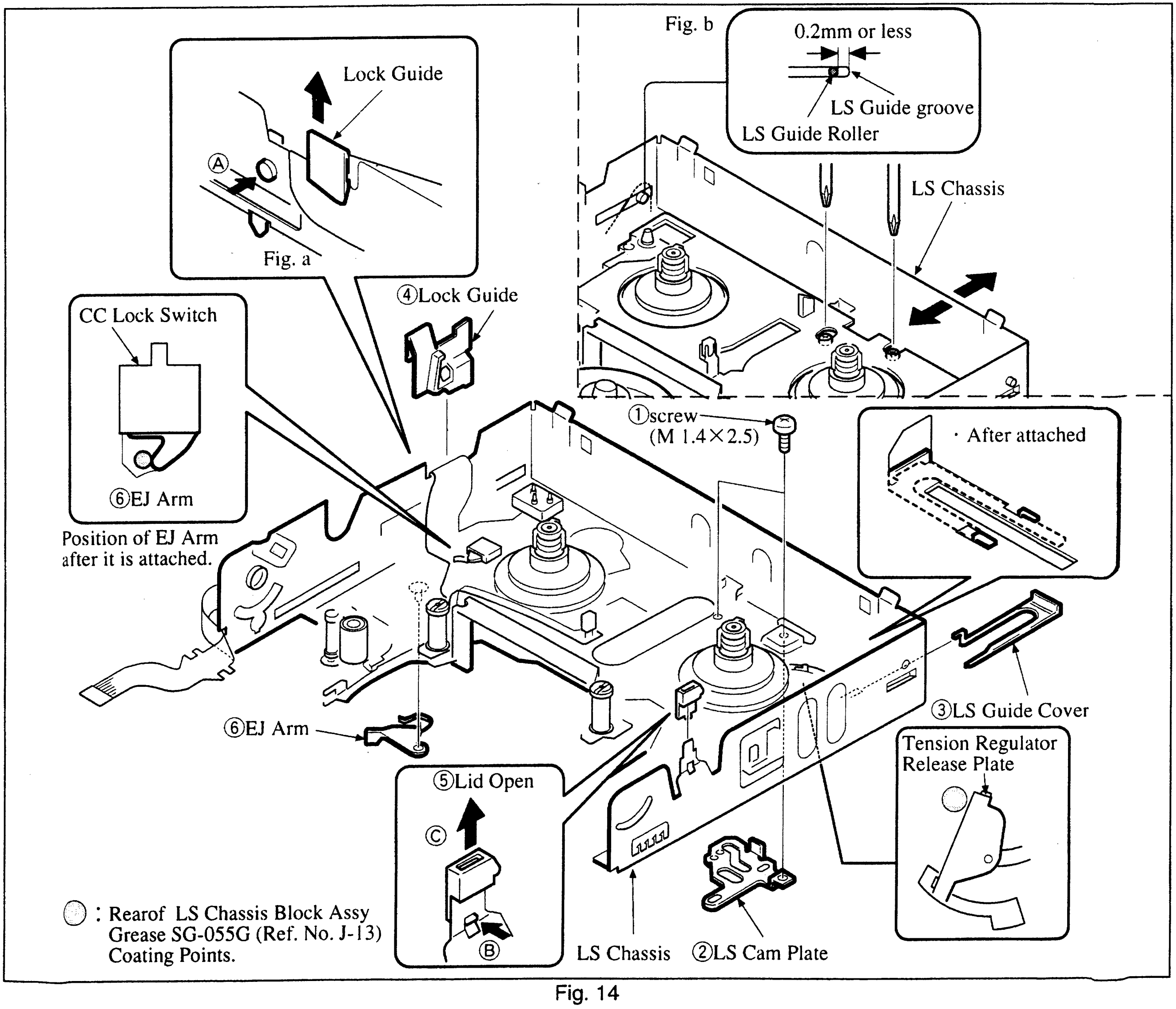

Lock Guide
Ⓐ
Fig. a
④Lock Guide
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
①screw (M 1.4×2.5)
· After attached
③LS Guide Cover
Tension Regulator Release Plate
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
LS Chassis
②LS Cam Plate
○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

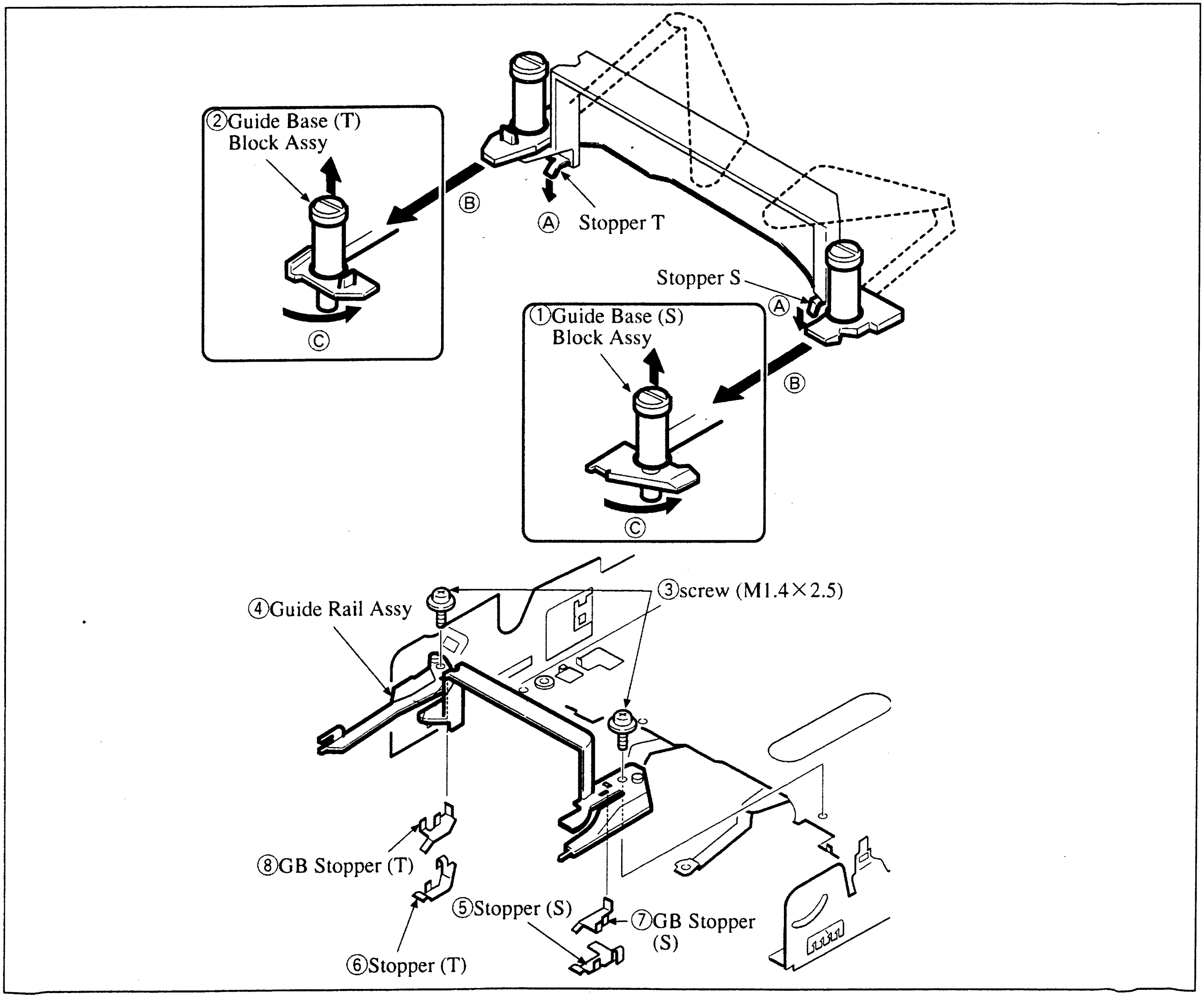

②Guide Base (T)
Block Assy
Ⓒ
Ⓑ
Ⓐ Stopper T
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper
(S)
⑥Stopper (T)

Fig. 15

- **PARTS CONSTITUTING THE MECHANISM CHASSIS**

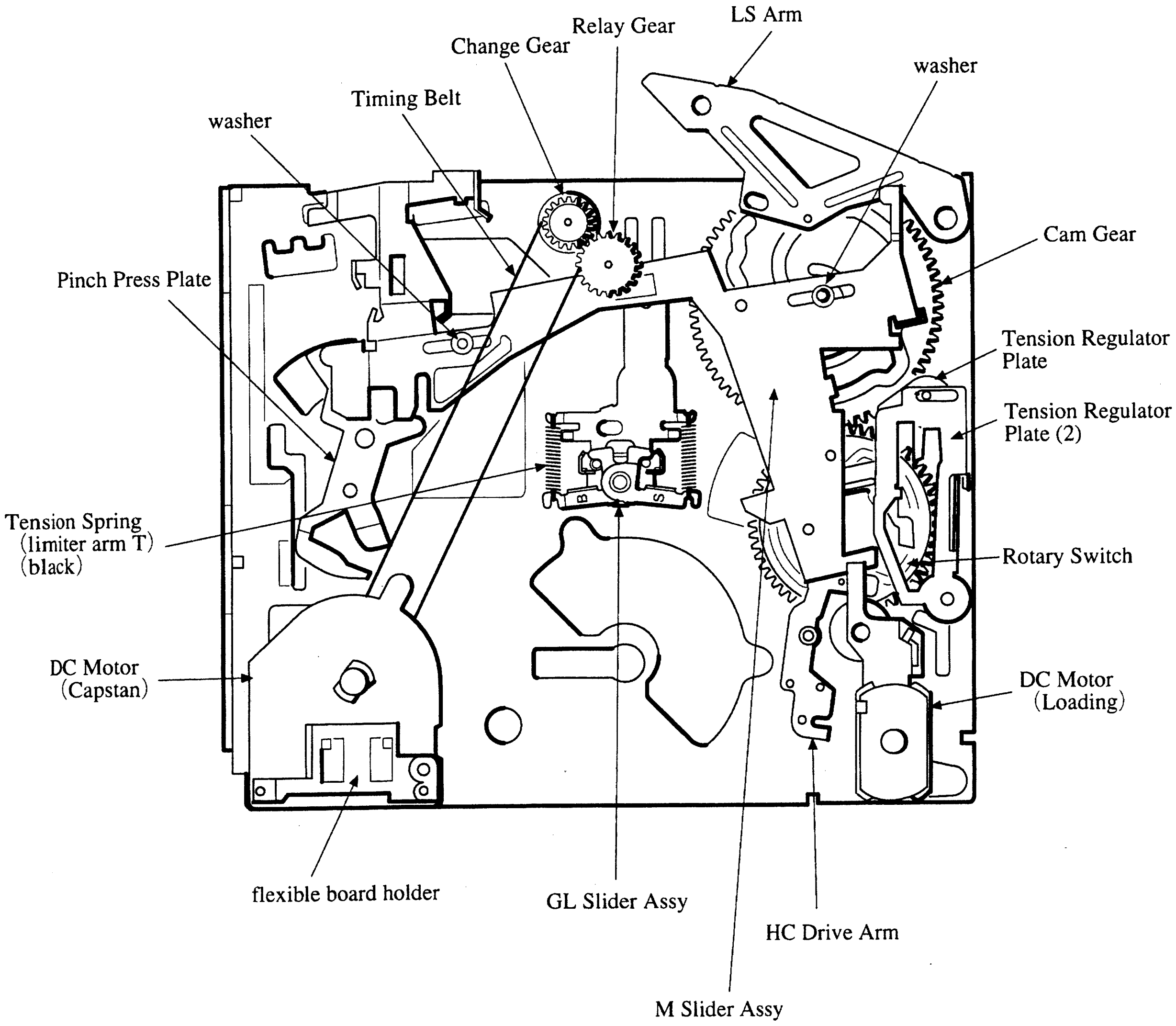

Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

3-11. DC Motor Assy (Loading)
(Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.

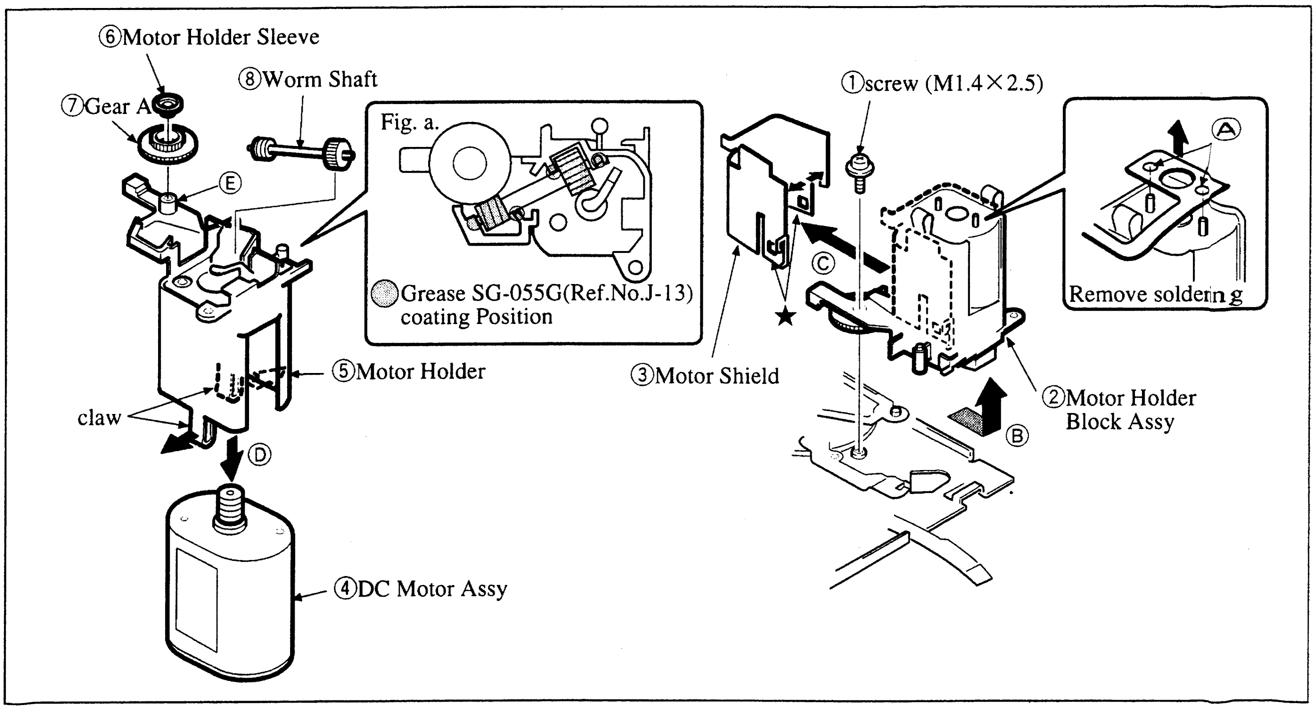

⑥Motor Holder Sleeve
⑧Worm Shaft
⑦Gear A
Ⓔ
Fig. a.
●Grease SG-055G(Ref.No.J-13) coating Position
①screw (M1.4×2.5)
Ⓐ
Remove soldering
Ⓒ
★
⑤Motor Holder
③Motor Shield
②Motor Holder Block Assy
Ⓑ
claw
Ⓓ
④DC Motor Assy

Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk * Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).

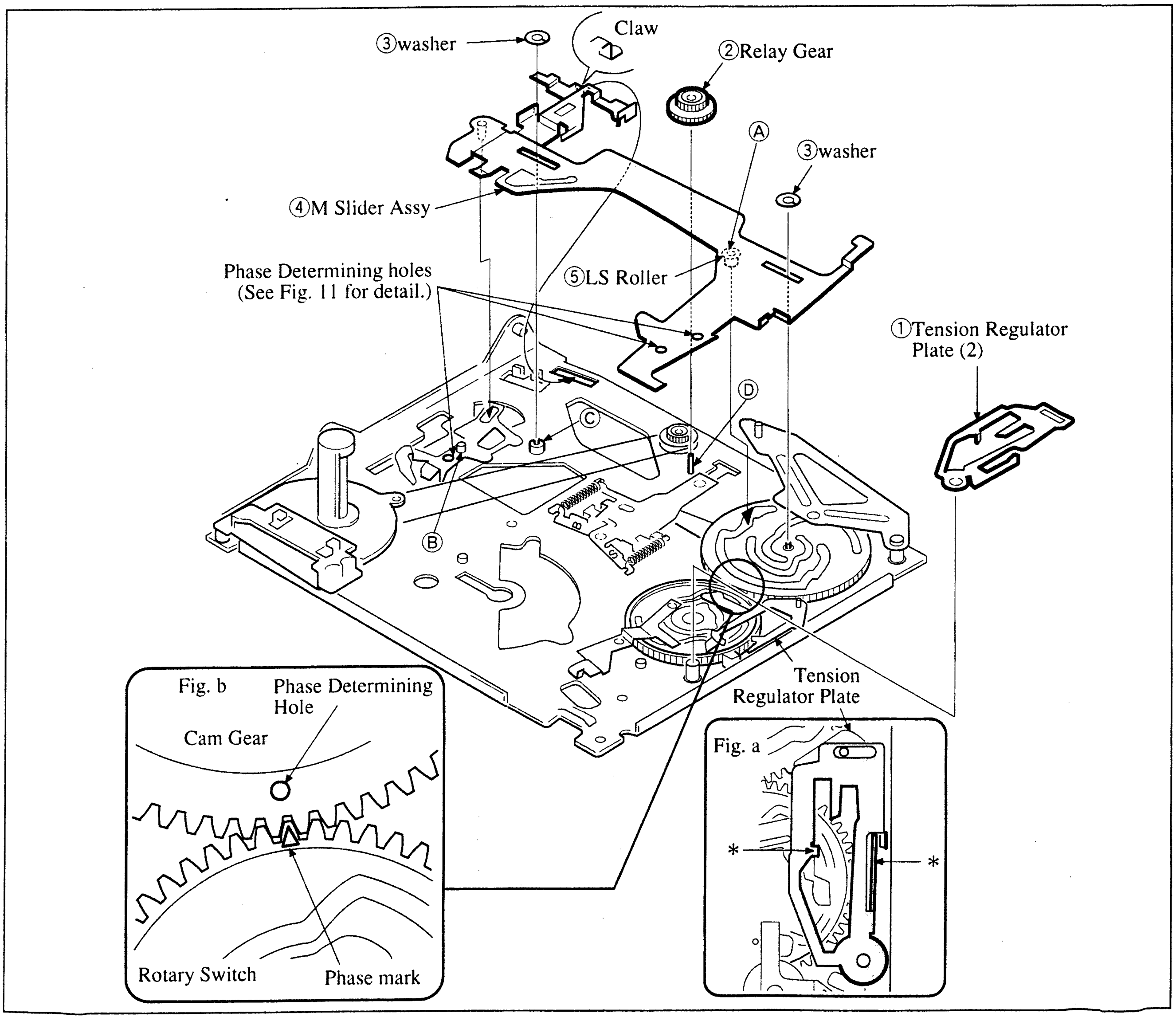

③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes
(See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator
Plate (2)
Ⓓ
Ⓒ
Ⓑ
Tension
Regulator Plate
Fig. b
Phase Determining
Hole
Cam Gear
Rotary Switch
Phase mark
Fig. a
*
*

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

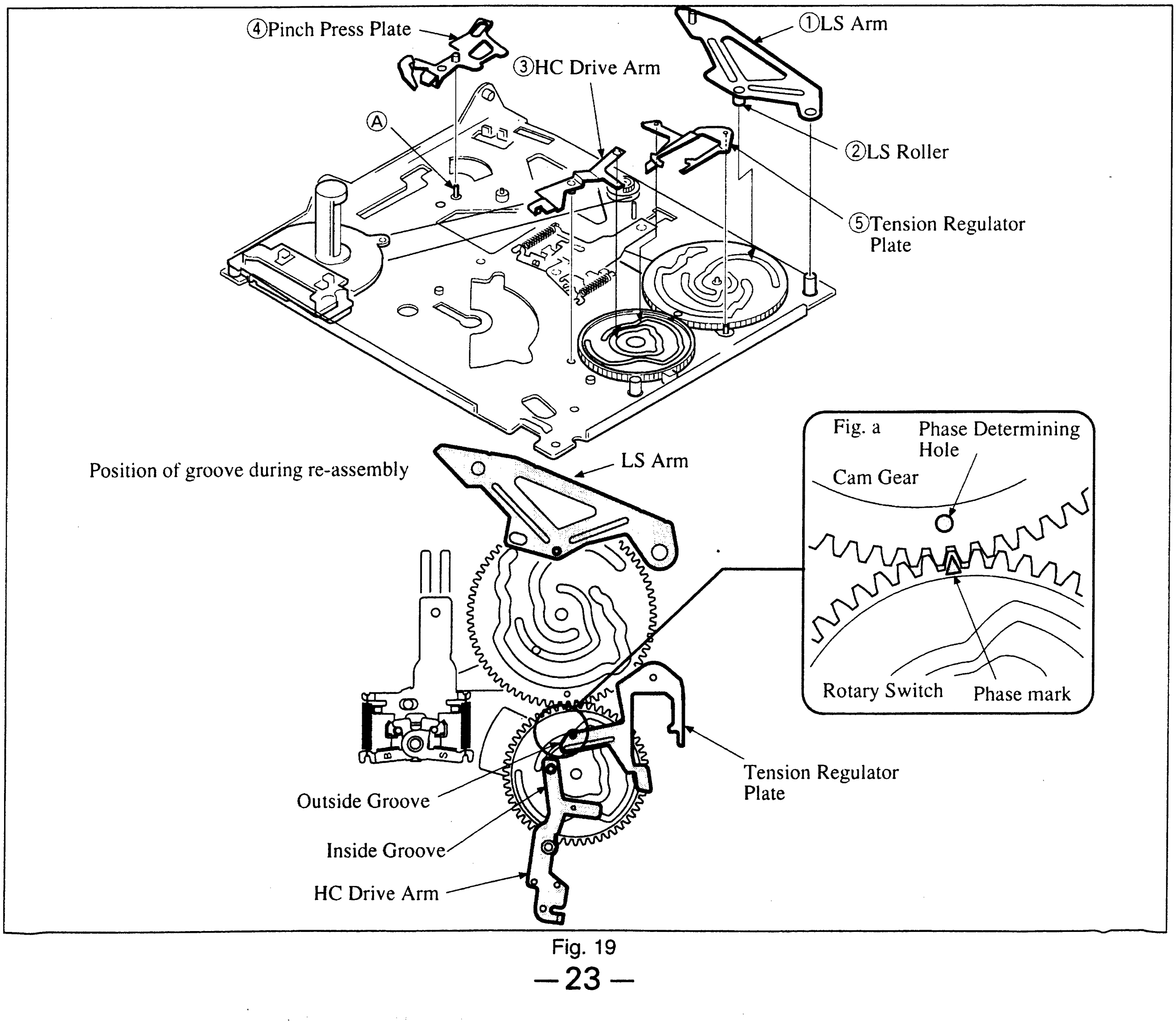

④Pinch Press Plate
③HC Drive Arm
①LS Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Position of groove during re-assembly
LS Arm
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

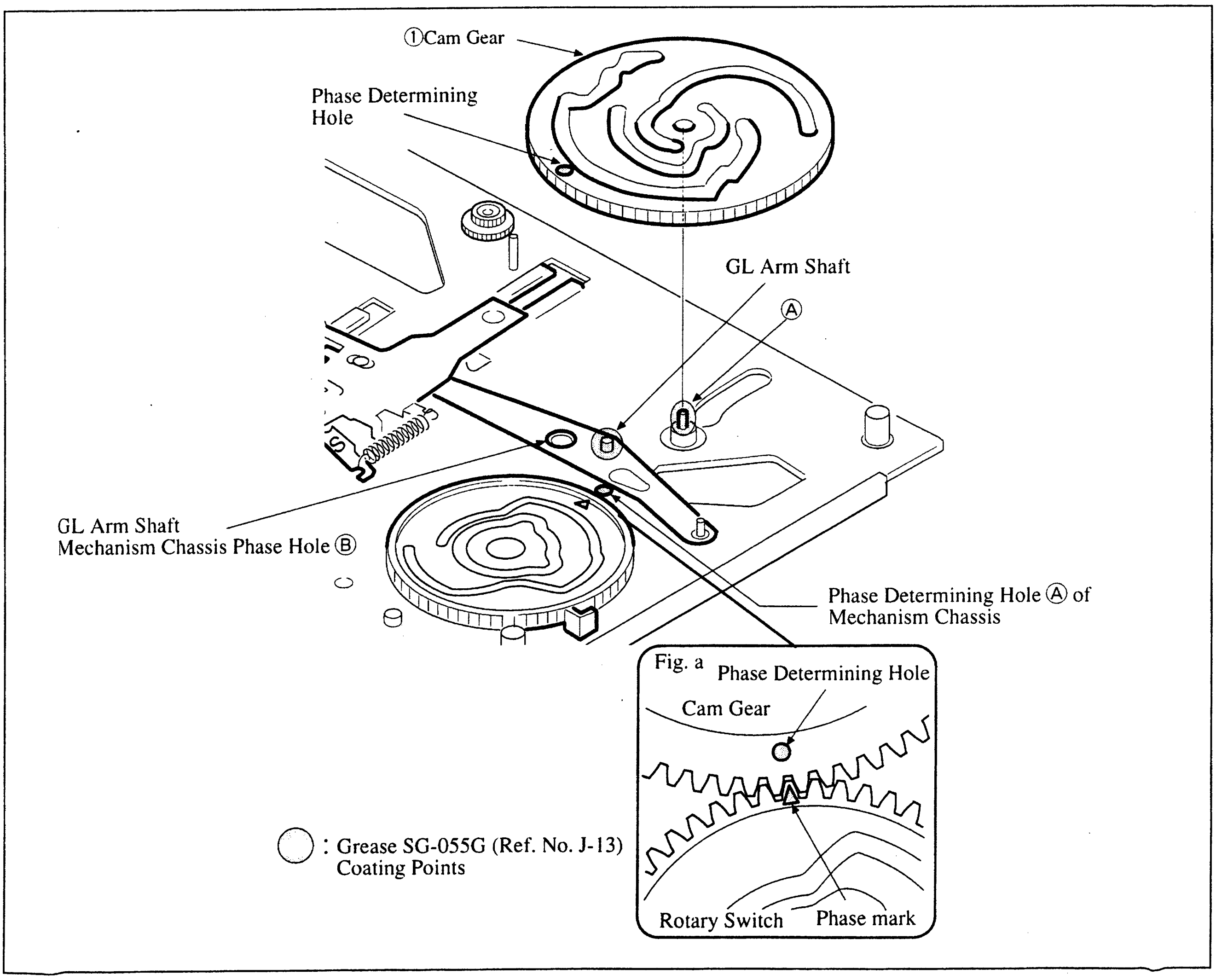

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft
Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

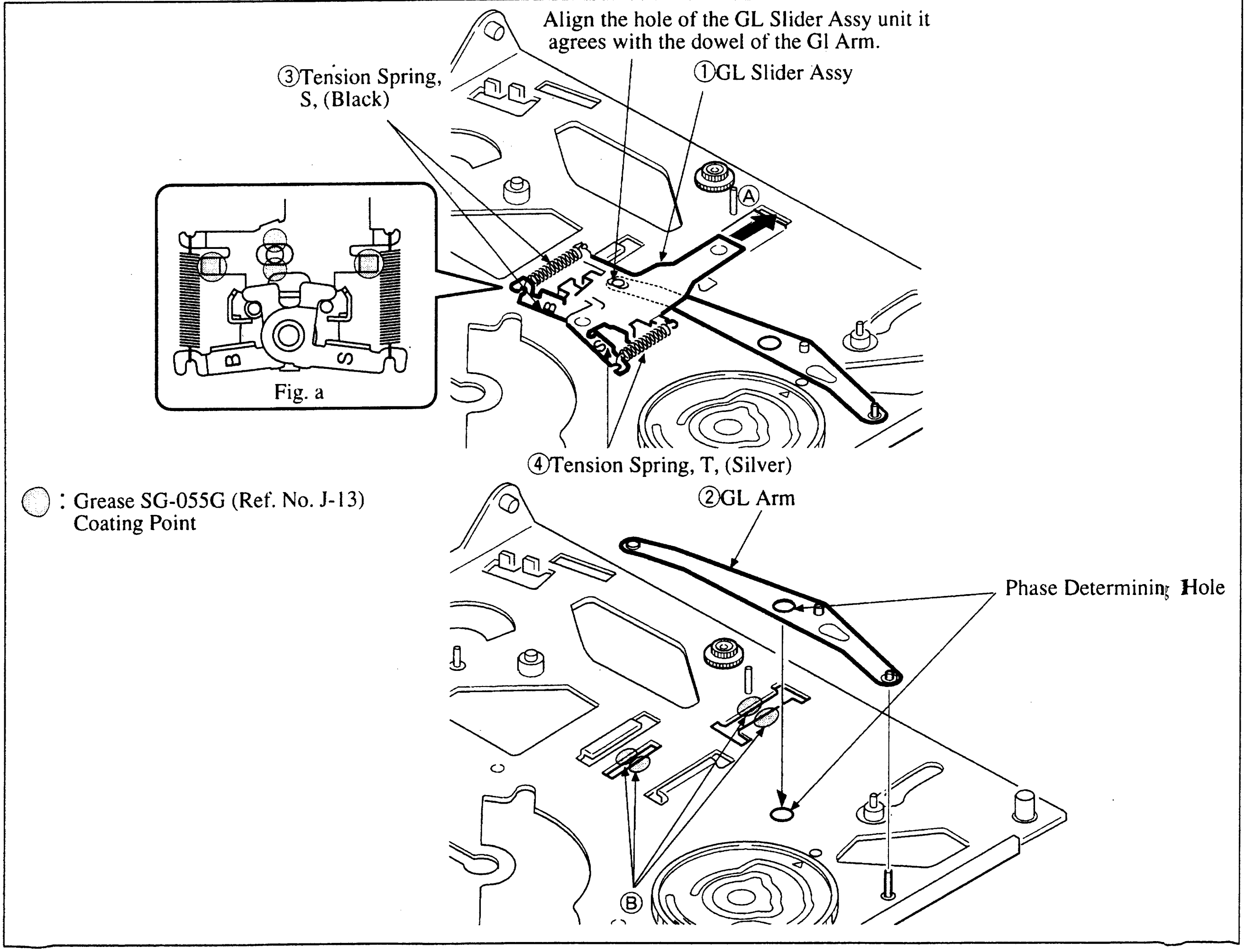

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
B
S
Fig. a
④Tension Spring, T, (Silver)
○ : Grease SG-055G (Ref. No. J-13) Coating Point
②GL Arm
Phase Determining Hole
Ⓑ

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

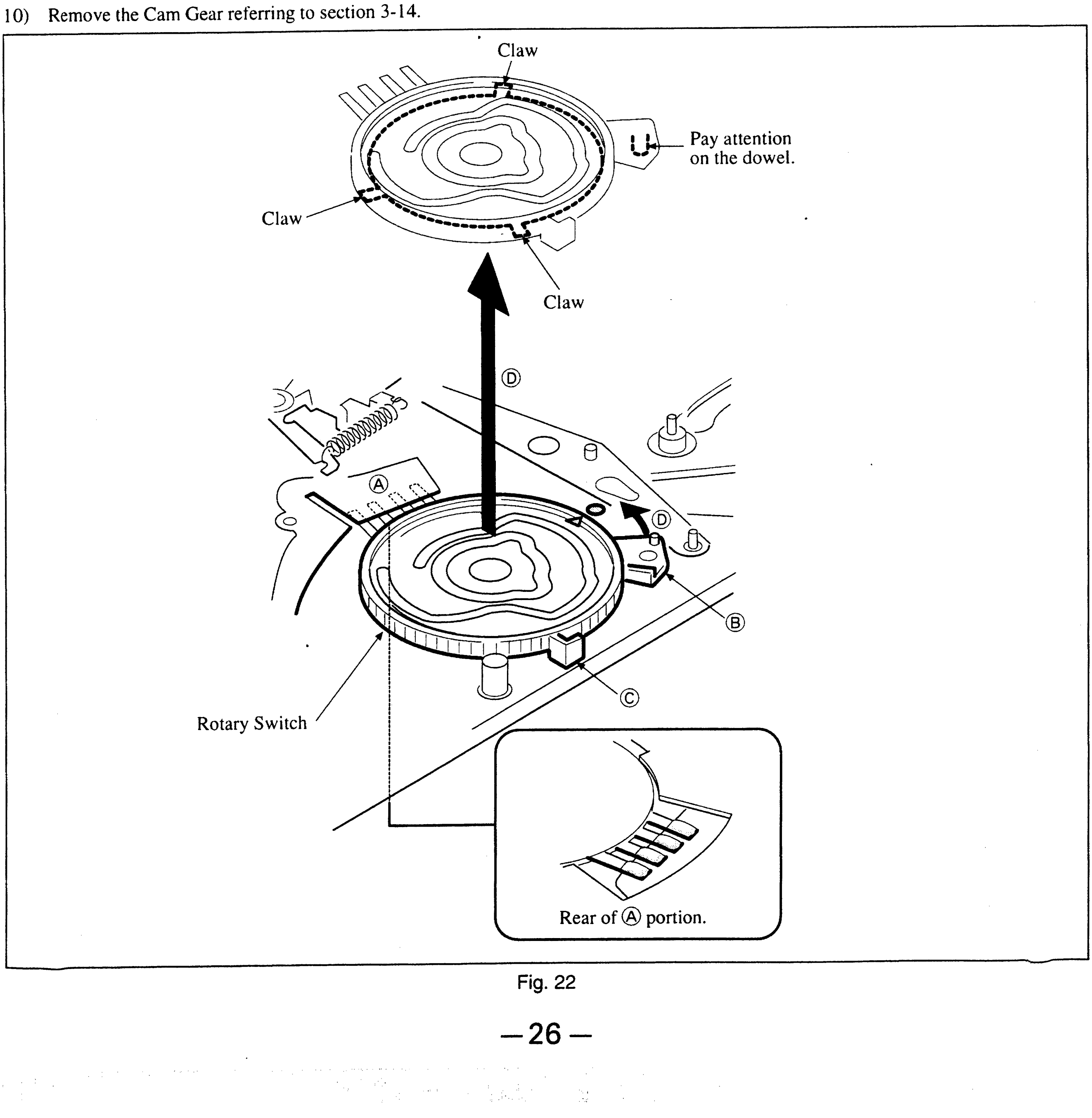


Fig. 22

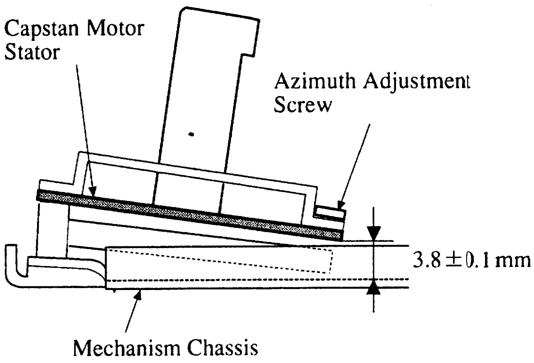
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor Stator
Azimuth Adjustment Screw
3.8±0.1 mm
Mechanism Chassis

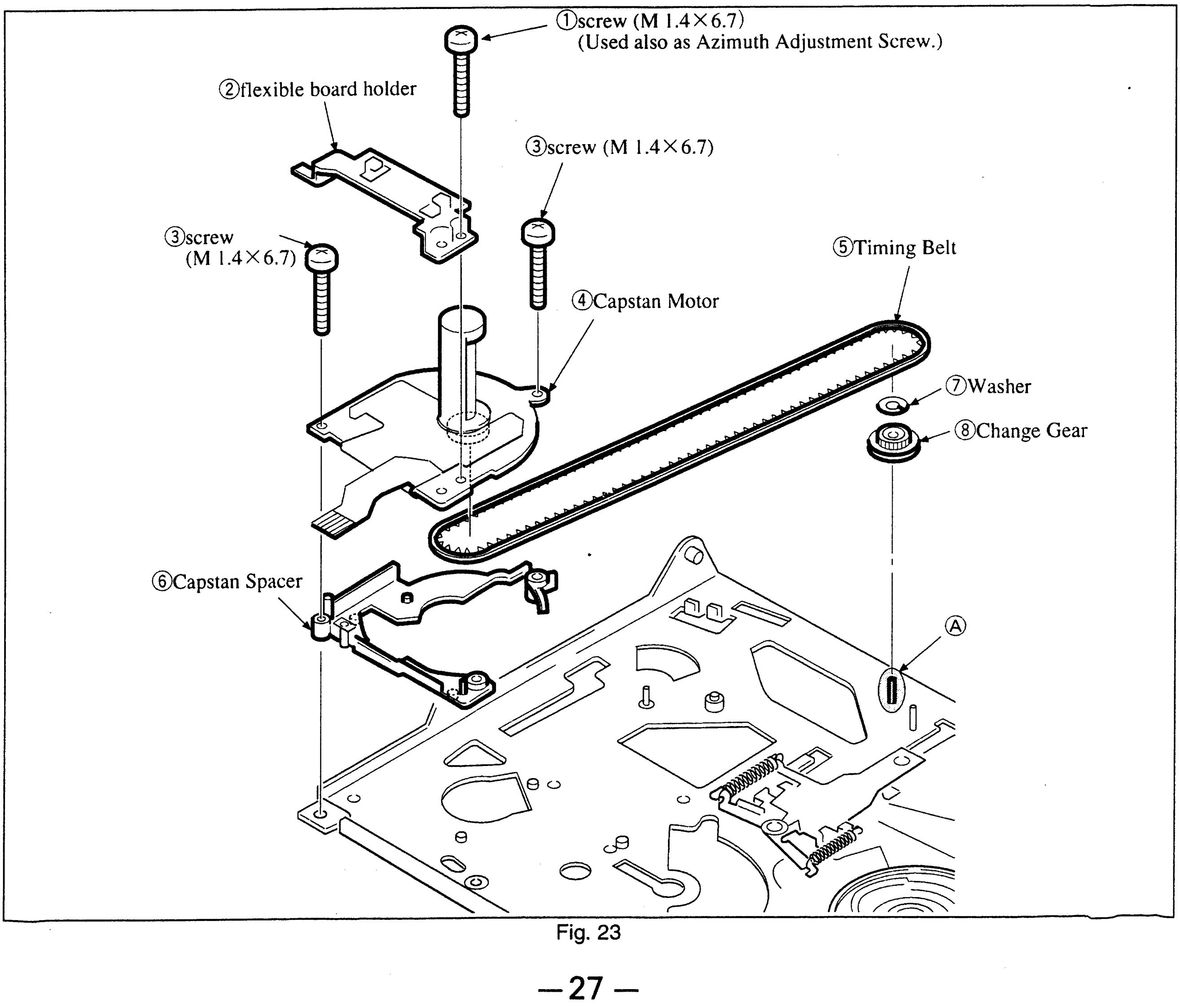

①screw (M 1.4×6.7)
(Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw (M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

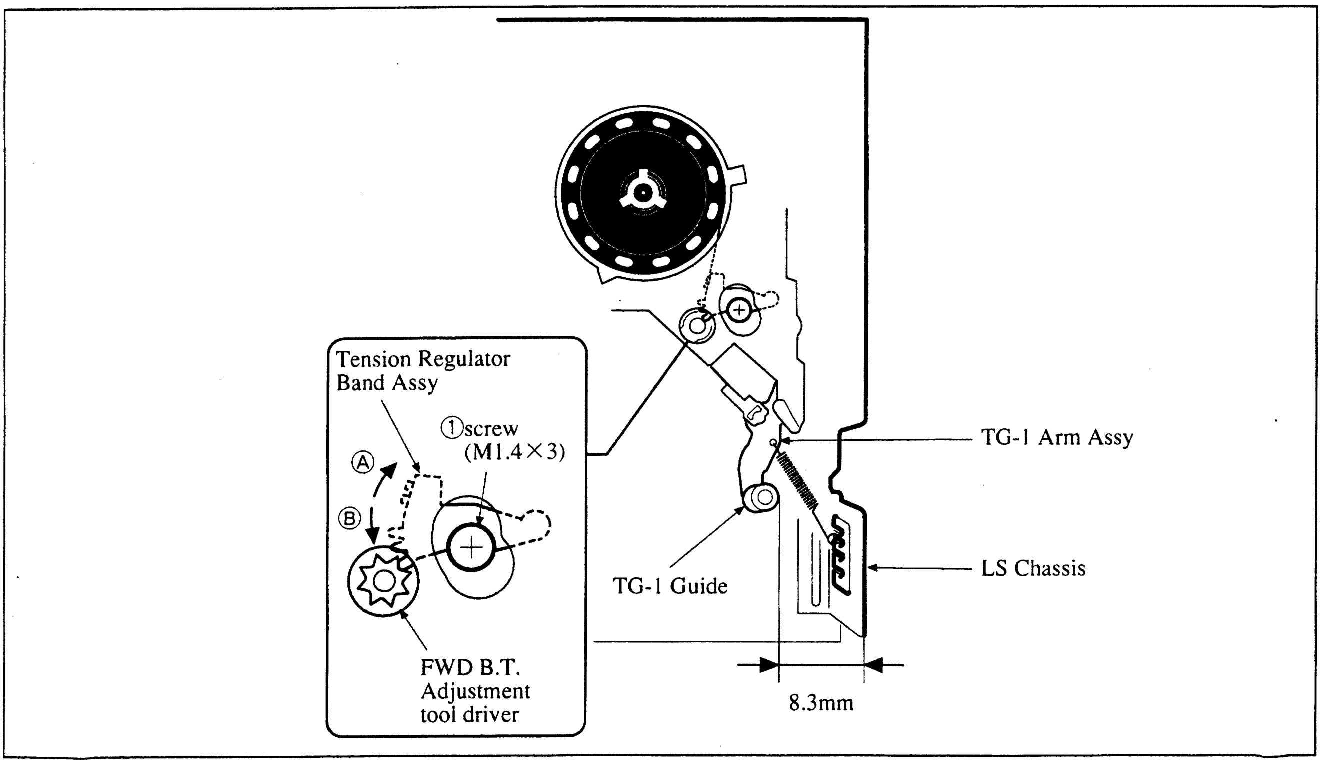

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Guide
TG-1 Arm Assy
LS Chassis
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

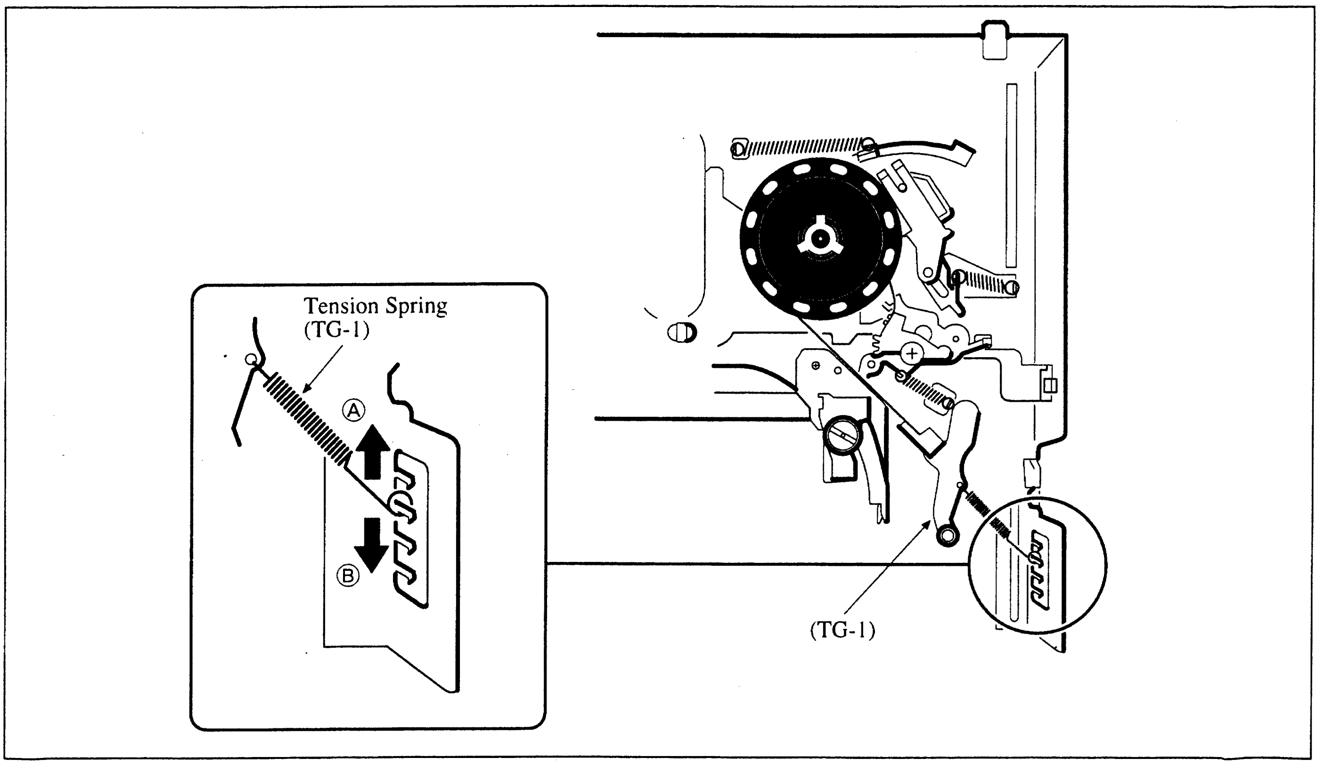


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose: Adjusts the head linearity.

Adjustment Error: Noise appears on top and bottom of display when playing back the tape recorded by other machines.

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

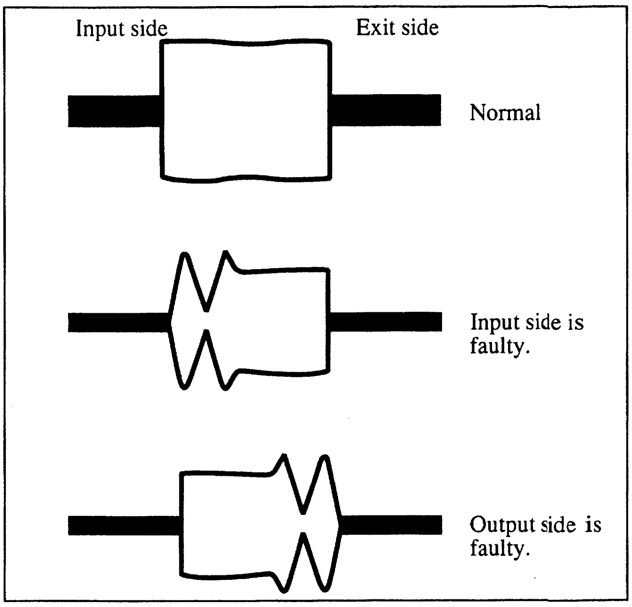


Fig. 26

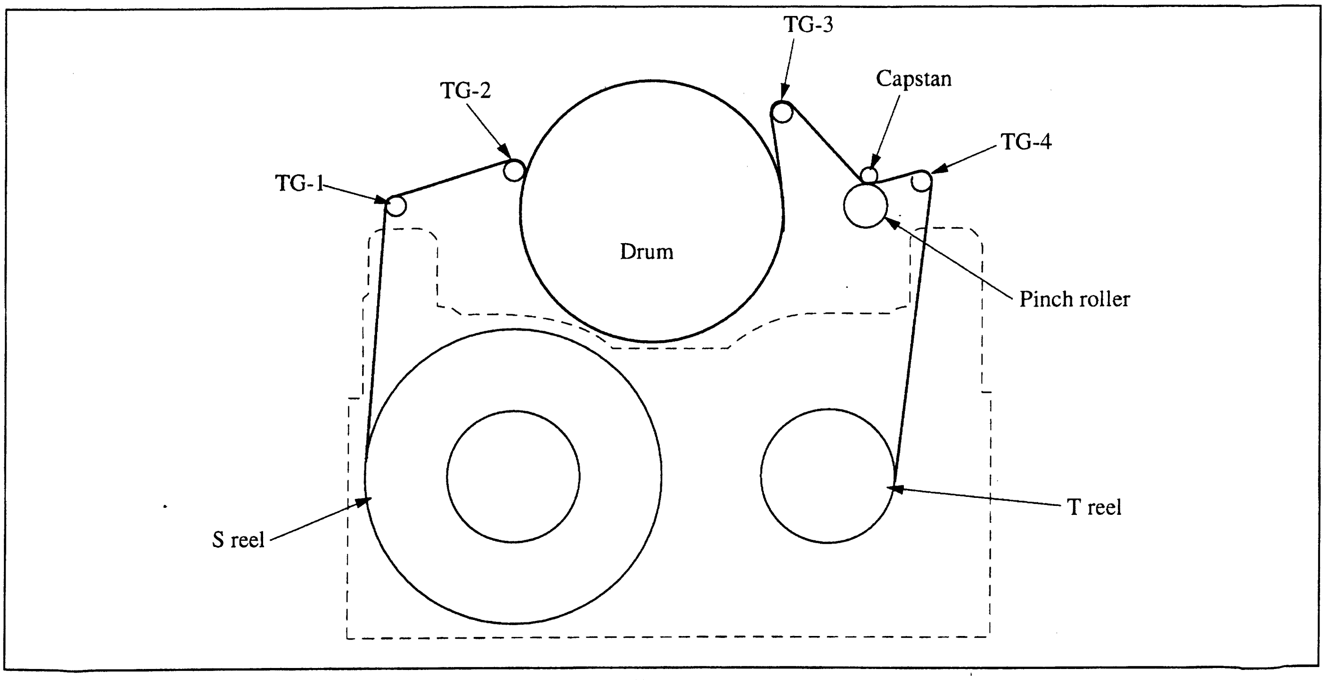


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

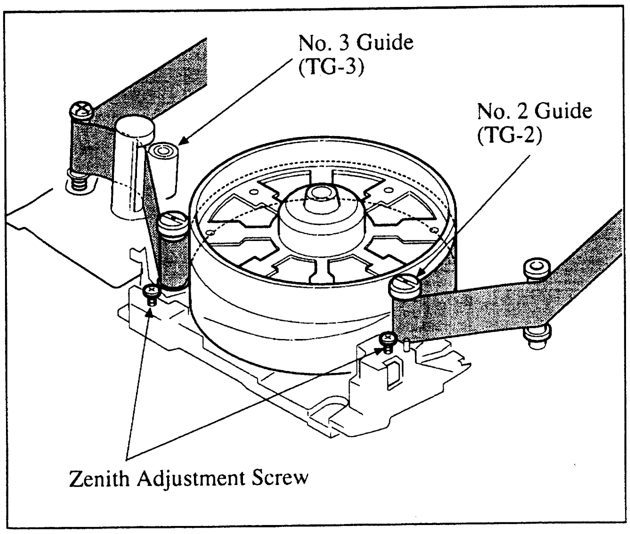


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

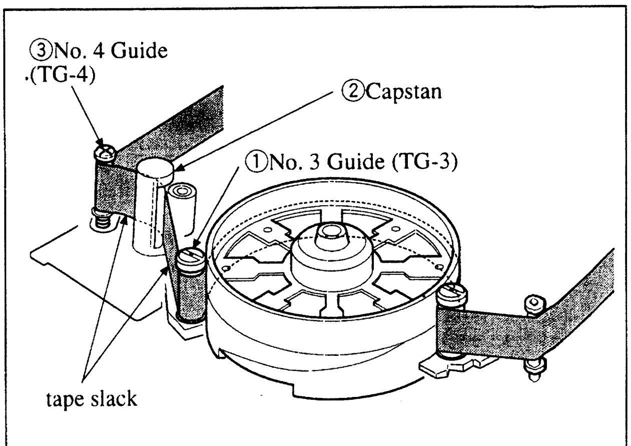


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

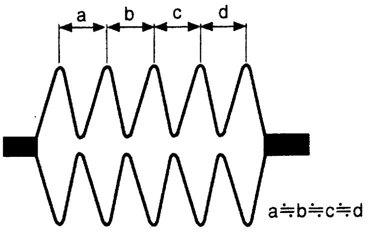


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

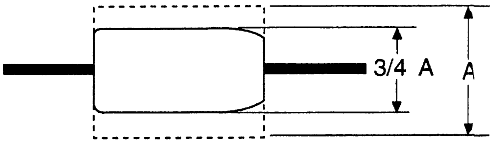


Fig. 31

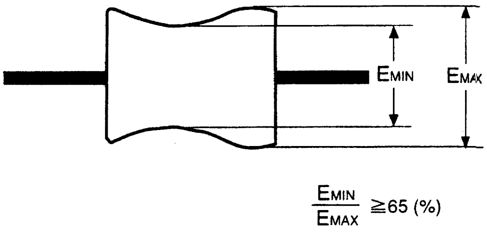


Fig. 32

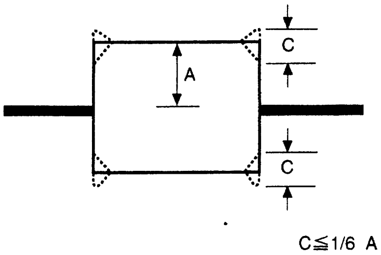


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

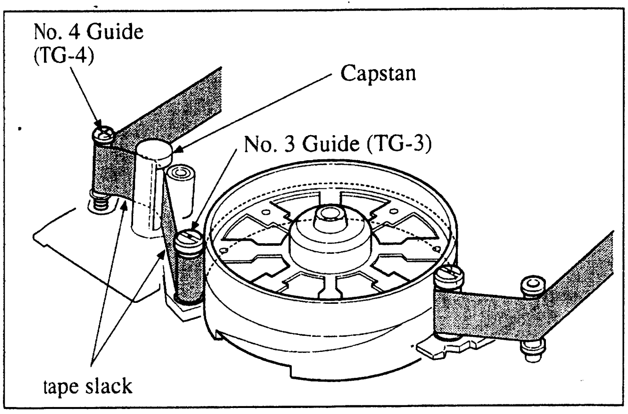


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

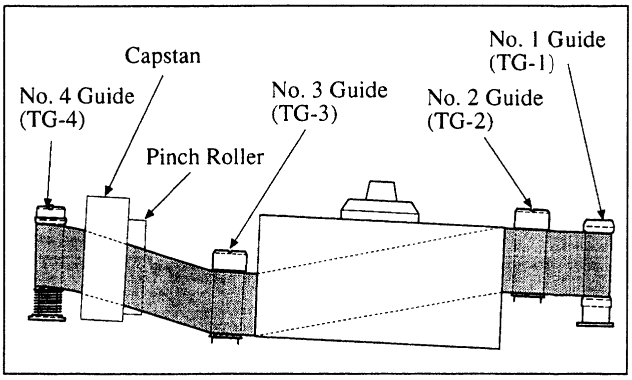
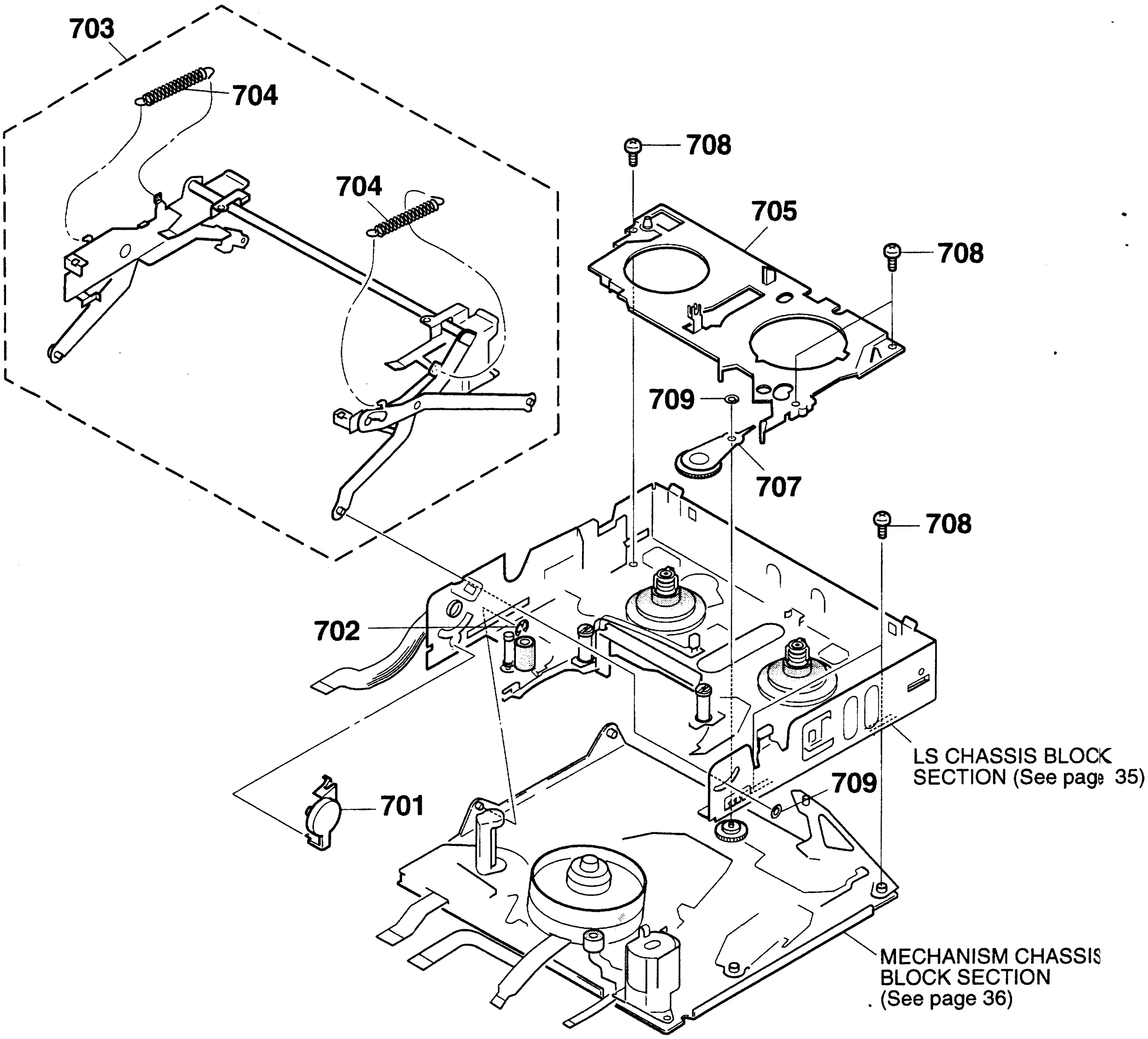


Fig. 35

5. EXPLODED VIEWS

5-1. Cassette Compartment Block Section

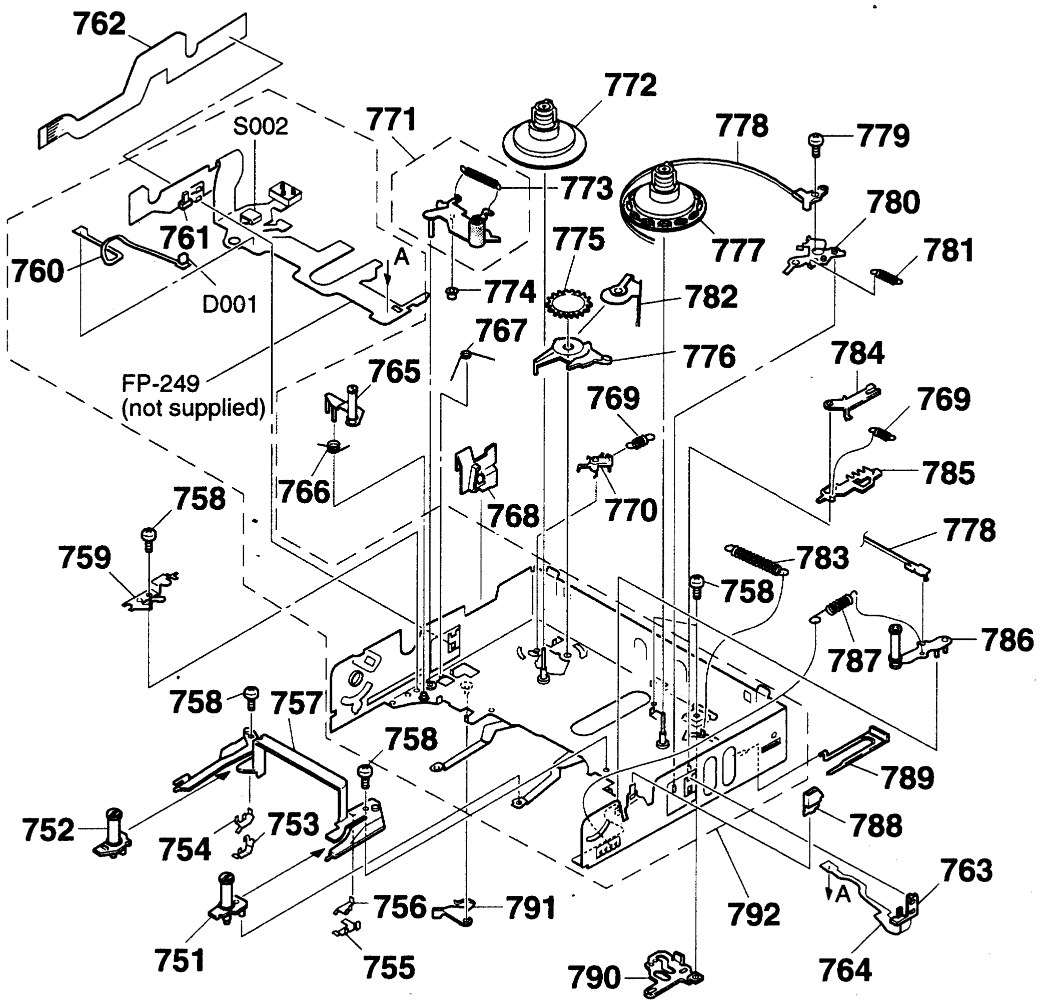


LS CHASSIS BLOCK SECTION (See page 35)

MECHANISM CHASSIS BLOCK SECTION (See page 36)

Ref.No.	Part No.	Description	Remarks
701	A-7040-421-A	DAMPER ASSY	
702	7-624-102-04	STOP RING 1.5, TYPE -E	
703	X-3945-400-1	CASSETTE COMPARTMENT ASSY	
704	3-965-587-01	SPRING, TENSION	
705	3-965-584-01	RETAINER, GOOSENECK	
707	X-3945-399-1	GEAR ASSY, GOOSENECK	
708	3-947-503-01	SCREW (M1.4X2.5)	
709	3-331-007-21	WASHER	

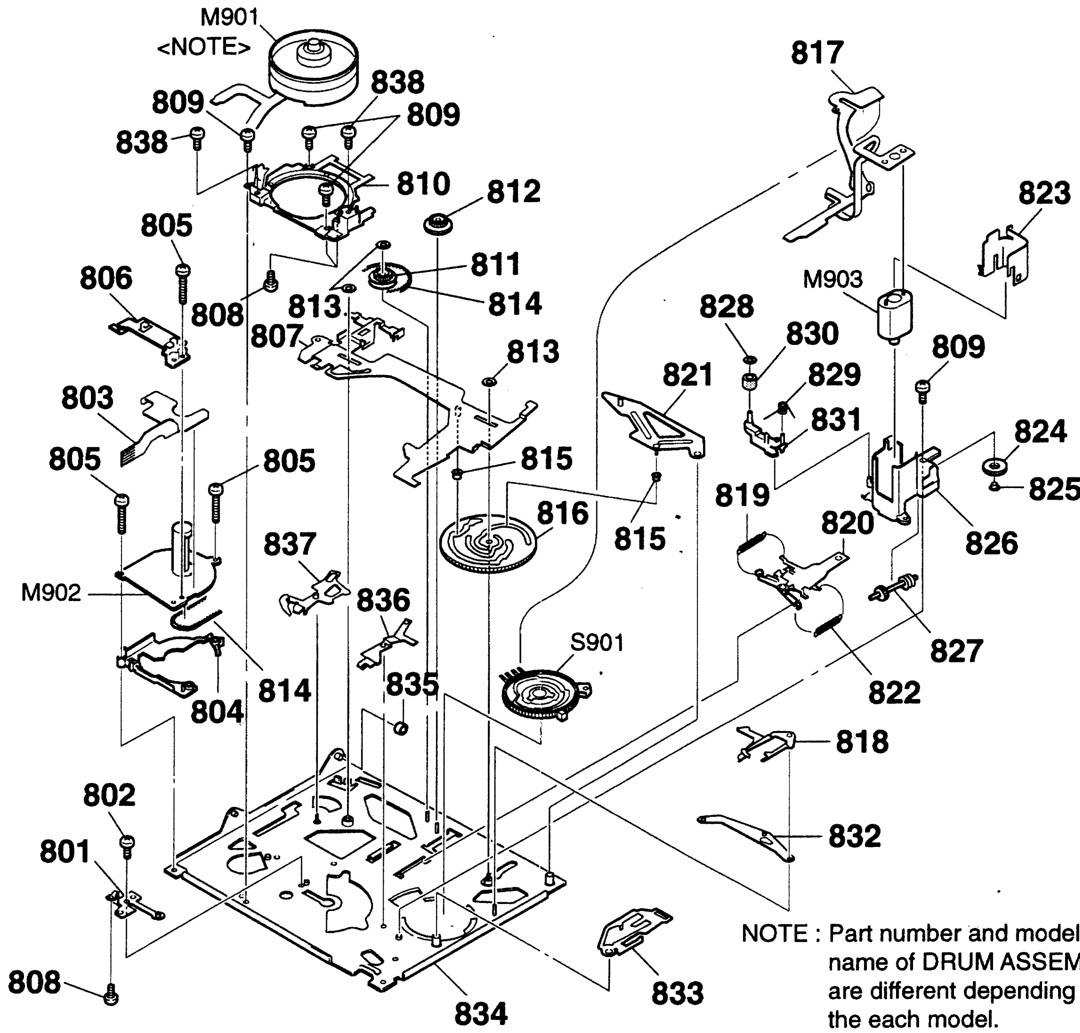
5-2. LS Chassis Block Section


762
S002
771
772
778
779
773
780
761
777
781
760
A
775
774
782
D001
767
776
765
784
FP-249
(not supplied)
769
769
785
758
766
768
770
778
759
783
758
786
787
758
757
758
789
752
754
753
788
763
756
791
A
792
751
755
790
764

Ref. No.	Part No.	Description	Remarks
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-A	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1. 4X2. 5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER (T), SENSOR	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER (S), SENSOR	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING, TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-01	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-01	RATCHET, T	
771	X-3945-394-1	ARM ASSY, PINCH	
772	X-3945-398-1	DECK ASSY, REEL, T	

Ref. No.	Part No.	Description	Remarks
773	3-965-648-01	SPRING (PINCH), TENSION	
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1. 4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING, TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-A	LS CHASSIS ASSY (S1)	
D001	8-719-988-42	DIODE GL453S	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C. C. LOCK)	

5-3. Mechanism Chassis Block Section

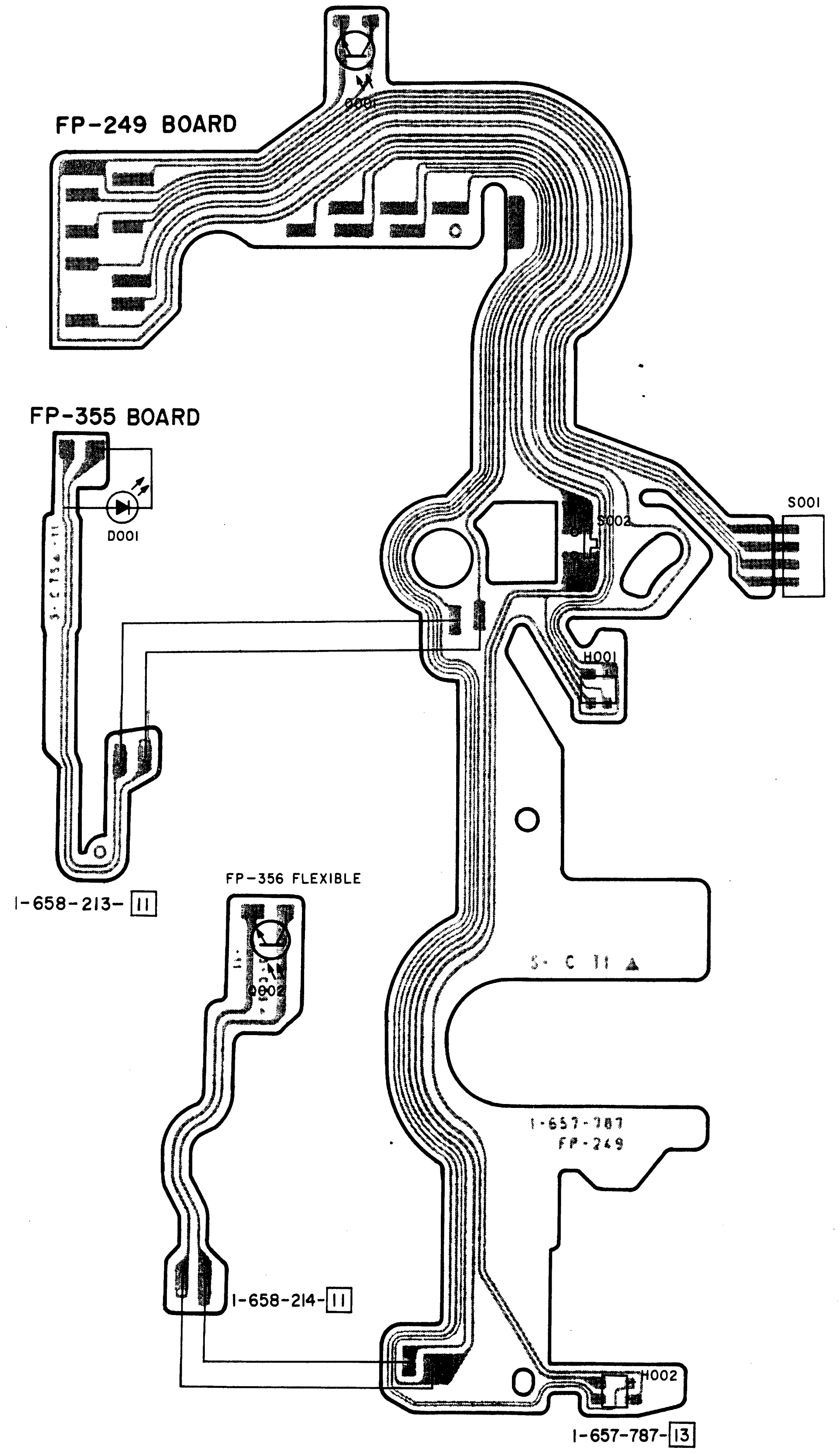

M901
<NOTE>
838
809
809
838
810
812
817
823
805
811
806
808
813
814
M903
828
807
813
830
809
821
829
803
831
824
805
805
815
816
819
825
815
820
826
837
M902
836
S901
827
814
835
822
804
818
802
832
801
808
833
834

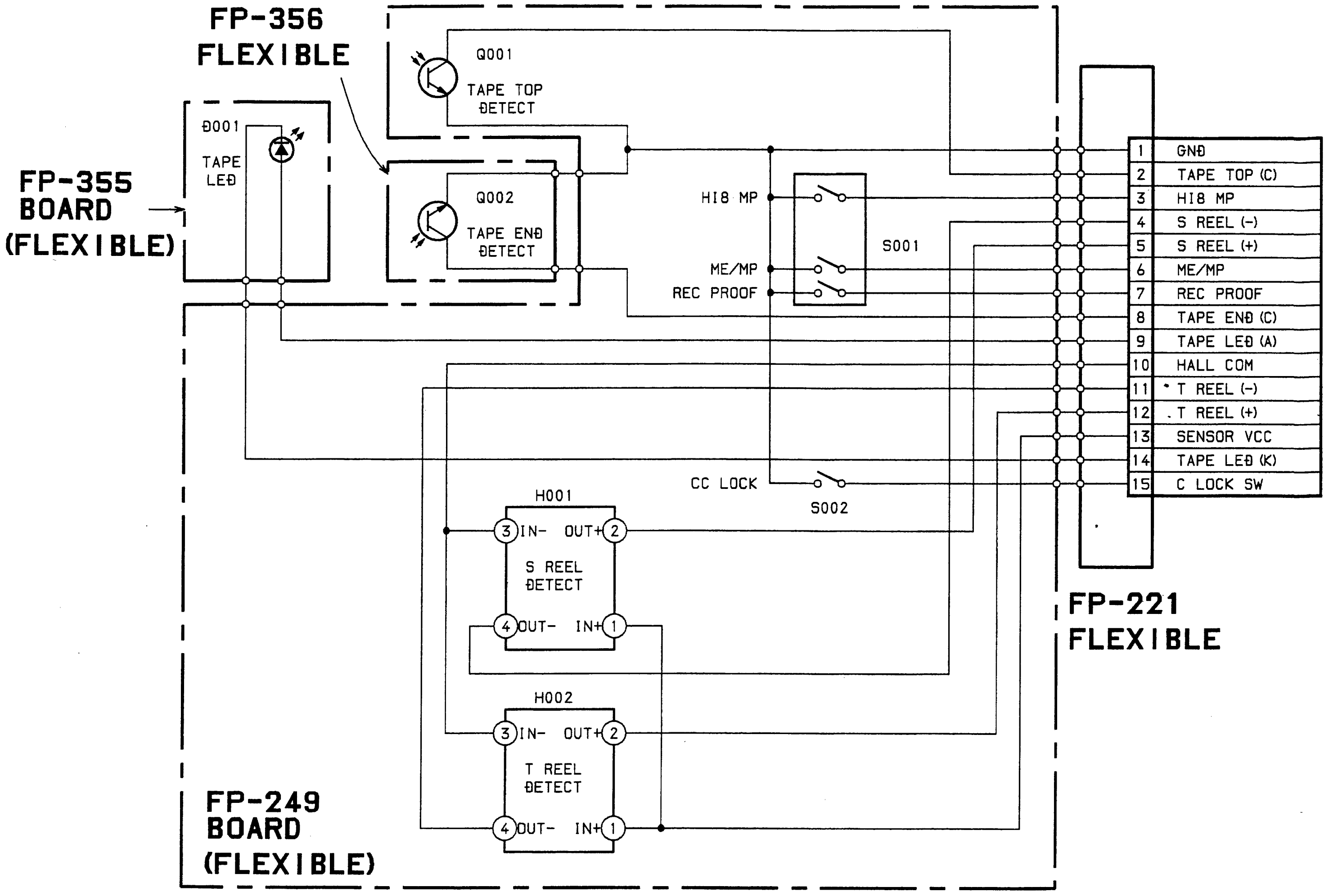
NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.

Ref. No.	Part No.	Description	Remarks
801	3-965-525-01	GROUND, SHAFT	
802	3-965-550-01	SCREW (M1. 7X1. 4)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-965-545-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1. 4 X 6. 5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	X-3945-387-1	SLIDER ASSY, M	
808	3-965-588-01	SCREW (M1. 4)	
809	3-947-503-01	SCREW (M1. 4X2. 5)	
810	A-7040-416-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING, TENSION (BLACK)	
820	X-3945-388-1	SLIDER ASSY, GL	

Ref. No.	Part No.	Description	Remarks
821	3-965-532-01	ARM, LS	
822	3-965-535-01	SPRING, TENSION (SILVER)	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING, TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	
835	3-965-526-01	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
838	3-966-819-01	SCREW +P1.4×3	
M901	See note.	DRUM BLOCK ASSY	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	

6. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM


FP-249 BOARD
Q001
FP-355 BOARD
D001
S001
S002
H001
1-658-213-11
FP-356 FLEXIBLE
Q002
1-658-214-11
1-657-787
FP-249
H002
1-657-787-13


FP-356 FLEXIBLE
Q001
TAPE TOP DETECT
FP-355 BOARD (FLEXIBLE)
D001
TAPE LED
Q002
TAPE END DETECT
HI8 MP
ME/MP
REC PROOF
S001
CC LOCK
S002
H001
IN-
OUT+
S REEL DETECT
OUT-
IN+
H002
T REEL DETECT
FP-249 BOARD (FLEXIBLE)
FP-221 FLEXIBLE
1 GND
2 TAPE TOP (C)
3 HI8 MP
4 S REEL (-)
5 S REEL (+)
6 ME/MP
7 REC PROOF
8 TAPE END (C)
9 TAPE LED (A)
10 HALL COM
11 T REEL (-)
12 T REEL (+)
13 SENSOR VCC
14 TAPE LED (K)
15 C LOCK SW

FP-249

7. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description	Remarks
		FP-249 BOARD ************	
	1-658-214-11	FP-356 FLEXIBLE BOARD	
	3-965-551-01	HOLDER (S), SENSOR	
	3-965-552-01	HOLDER (T), SENSOR	
		< HOLE ELEMENT >	
H001	8-719-033-37	ELEMENT, HALL HW-105C	
H002	8-719-033-37	ELEMENT, HALL HW-105C	
		< TRANSISTOR >	
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F	
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F	
		< SWITCH >	
S001	1-692-614-11	SWITCH, PUSH (3 KEY)(REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C.LOCK)	

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

SUPPLEMENT-1

File this supplement with the 8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ.
(96-008)

Subject : USE OF MODE SELECTOR Ⅱ

2-5. USE OF MODE SELECTOR II

2-5-1. Outline

This unit is a mechanism drive tool which supplements the maintenance of each mechanism deck. Its functions are described below.

1. **Manual test**

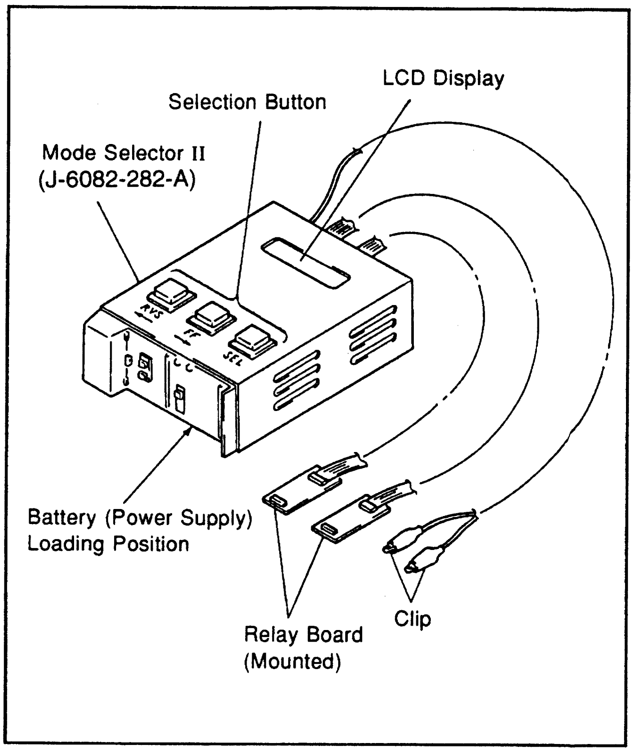
   A mode which drives the motor only while the switch is ON. It enables the operator to control the motor as desired.

2. **Step test**

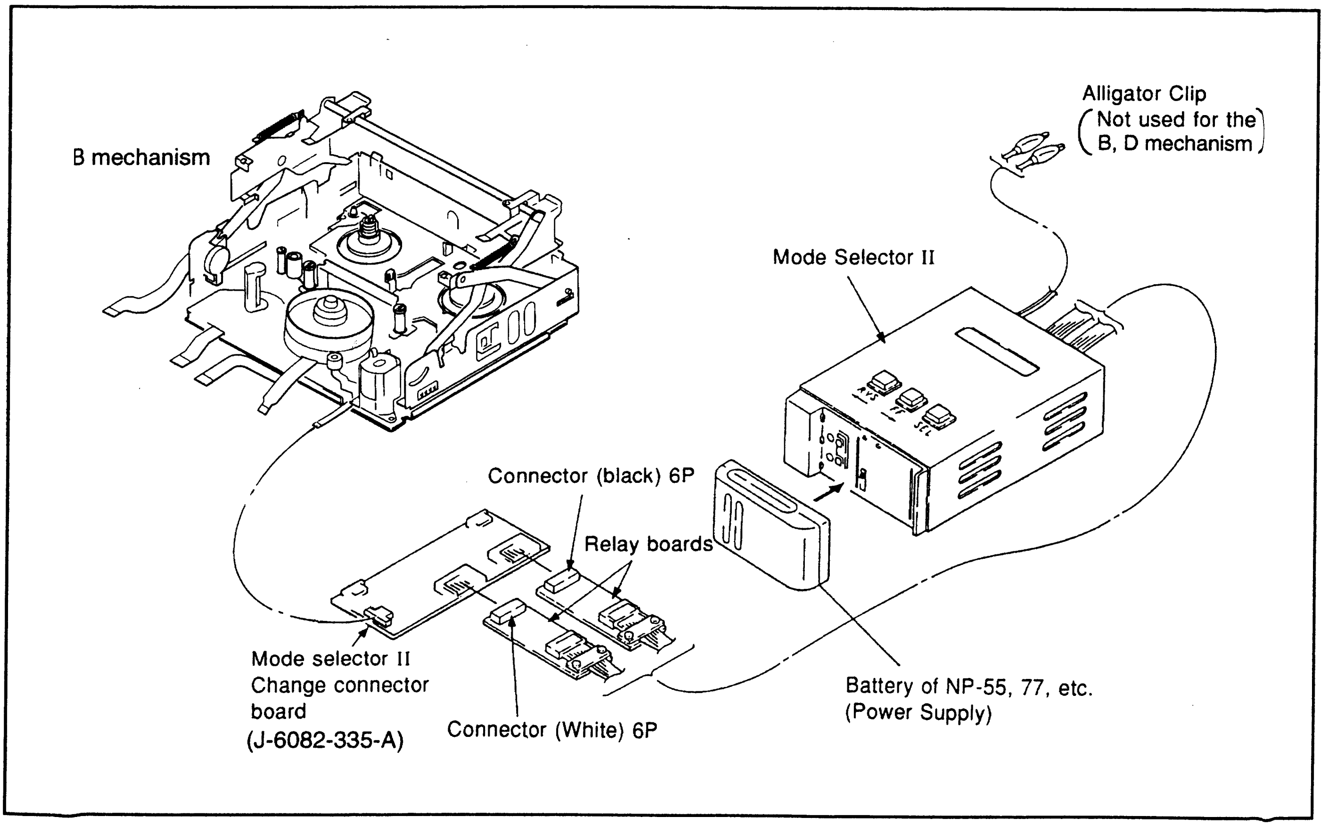
   A mode which drives the motor until the current condition detected by the sensor changes to another condition. It enables the movements made by the motor in each operation to be controlled while being checked.

3. **Auto test**

   A mode that checks if the mechanism operates normally according to the condition shift table recorded in the unit for each mechanism deck. All the conditions of the decks are checked through a series of operations.
   An error message is displayed if incorrect shifts and conditions are detected and operations are stopped.

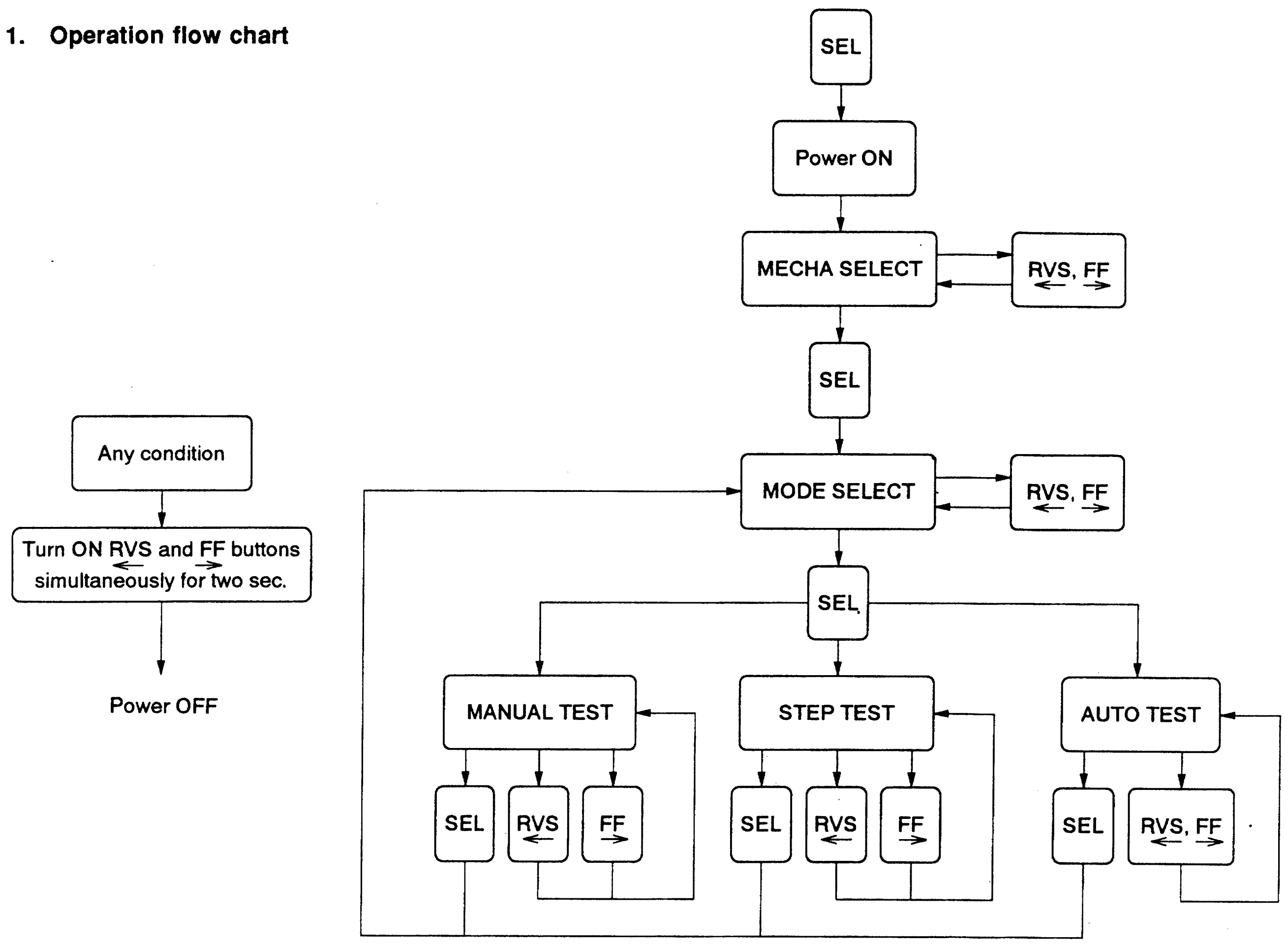

LCD Display
Selection Button
Mode Selector II
(J-6082-282-A)
Battery (Power Supply)
Loading Position
Relay Board
(Mounted)
Clip

Mode Selector II (J-6082-282-A) Connection


B mechanism
Alligator Clip
(Not used for the B, D mechanism)
Mode Selector II
Connector (black) 6P
Relay boards
Mode selector II
Change connector
board
(J-6082-335-A)
Connector (White) 6P
Battery of NP-55, 77, etc.
(Power Supply)

2-5-2. Operation

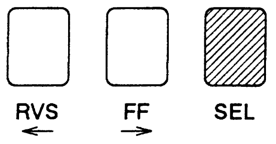
1. Operation flow chart


SEL
Power ON
MECHA SELECT
RVS, FF
SEL
MODE SELECT
RVS, FF
SEL
MANUAL TEST
STEP TEST
AUTO TEST
SEL
RVS
FF
SEL
RVS
FF
SEL
RVS, FF
Any condition
Turn ON RVS and FF buttons simultaneously for two sec.
Power OFF

(Excluding the K mechanism)

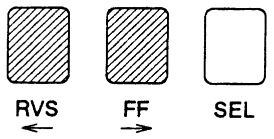
2. Turning ON the mode selector II

To turn ON the power supply, turn on the SEL button.



3. Turning OFF the mode selector II

To turn OFF the power supply, turn on the RVS and FF buttons simultaneously for more two seconds.



4. Mechanism selection

Immediately after the power supply has been turned on, "MECHA SELECT" will be displayed on the LCD. Select the desired mechanism using the RVS and FF buttons, and press the SEL button to complete the selection. (Fig. I shows the B mechanism)

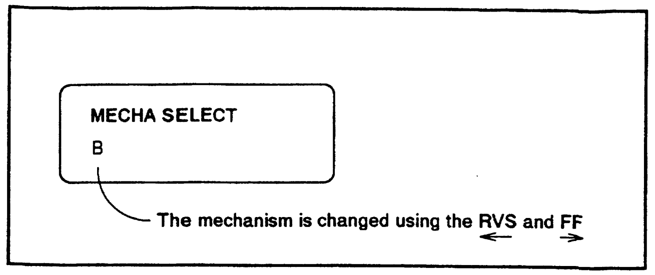

MECHA SELECT
B
The mechanism is changed using the RVS and FF

Fig. I

5. Mode selection

Select the test-"MANUAL", "STEP", and "AUTO"- to be executed.
Select the desired mode on the screen using the RVS and FF buttons, and press the SEL button to complete the selection.

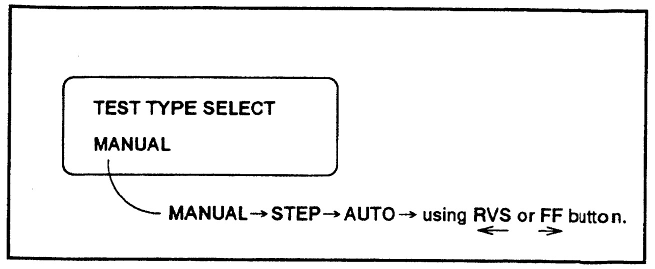

TEST TYPE SELECT
MANUAL
MANUAL→STEP→AUTO→ using RVS or FF button.

Fig. II

6. Manual test

A mode that drives the motor only when the RVS or FF button is pressed.

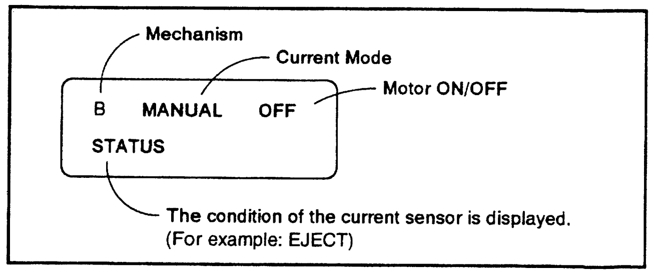

Mechanism
Current Mode
Motor ON/OFF
B MANUAL OFF
STATUS
The condition of the current sensor is displayed.
(For example: EJECT)

Fig. III

7. Step test

A mode that drives the motor until the direction of motor operations is set using the RVS and FF buttons and the current condition is changed.

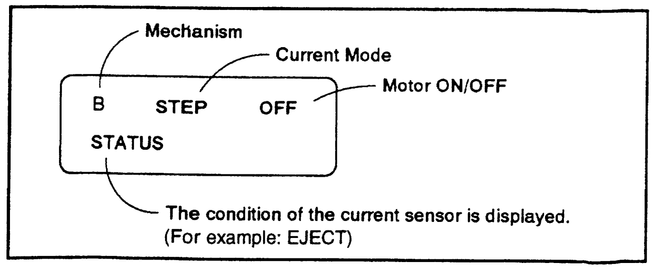

Mechanism
Current Mode
Motor ON/OFF
B STEP OFF
STATUS
The condition of the current sensor is displayed.
(For example: EJECT)

Fig. IV

8. Auto test

Each mechanism deck is checked for its recorded operation sequence. The check is executed by comparing the sensor signals generated in the operation sequence with the recorded operation sequence.
The same operation is carried out when the RVS or FF button is turned on.

Note: Sometimes the AUTO TEST spoils sequence due to a small range of S. OFF, but this is not a D mechanical trouble.

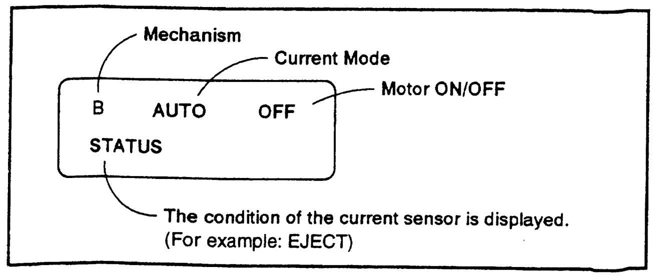

Mechanism
Current Mode
Motor ON/OFF
B AUTO OFF
STATUS
The condition of the current sensor is displayed.
(For example: EJECT)

Fig. V

Mechanism condition (position) shifting order

After selecting the mechanism, select one mode from the two test modes, excluding the AUTO test. Then press the RVS or FF button and specify the mechanism condition (position). (Displayed at the STATUS area)
EJECT ↔ USE ↔ LOAD ↔ STOP ↔ TURN ↔
R/P ↔ RVS

Code \ MD name				B mechanism
A	B	C		
1	0	0	1	EJECT
1	1	0	2	USE
0	1	0	3	LOAD
0	1	1	4	STOP
0	0	1	5	TURN
0	0	0	6	R/P
1	0	1	7	RVS

9. Battery alarm display

When the battery voltage (power supply unit of the unit) drops, this alarm is displayed, no operations can be carried out and the battery must be changed.

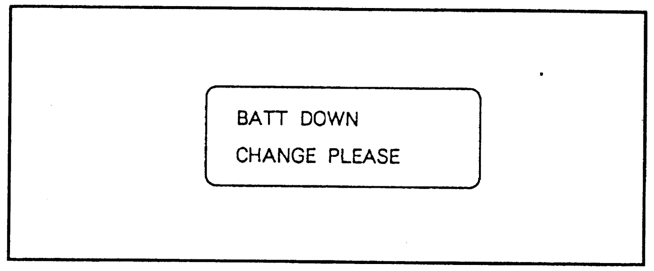

BATT DOWN
CHANGE PLEASE

Fig. VI

8mm Video MECHANICAL ADJUSTMENT MANUAL VII

Sony Corporation
Consumer A&V Products Company
Personal A&V Products Div.

English
96B16118-1
Printed in Japan
© 1996.2
Published by Personal A&V Products Div.
Quality Engineering Dept.

CCD-TR3100E/TR3400E

RMT-717

SERVICE MANUAL

AEP Model
UK Model
CCD-TR3100E
E Model
Australian Model
CCD-TR3400E

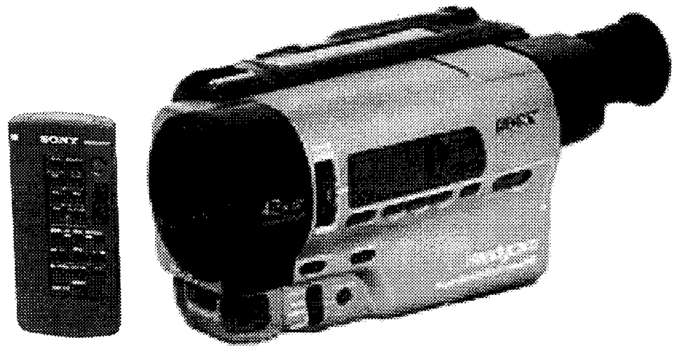


Photo: CCD-TR3100E
RMT-717

Video Hi8
Handycam
B MECHANISM

Differences Manual

For MECHANISM ADJUSTMENTS, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL VII" (9-973-801-11).

- Only the differences between CCD-TR3100E/TR3400E and CCD-TR3300E are mentioned in the Service Manual. Use for repair together with the Service Manual of CCD-TR2200E/TR2300E/TR3300E (9-973-892-11), Supplement-1 (9-973-892-81) and Correction-1 (9-973-892-91).

- **Differeces compared with CCD-TR3300E**

1. **CCD-TR3100E**
   - Deleting the EZ connector and the EZ-21 Board.
   - Changing the View Finder (Color EVF → B/W EVF (VF-104 Board))
   - Changing the Memory Control IC (IC701, IC702 on the MM-32 Board)
   - Changing the Mode Control IC (IC1952 on the HI-40 Board)
   - Changing the Video, Y. Chroma and Servo/System Control IC (IC102, 105, 106, 117 on the VC-177 Board)
   - Changing the Accessory Shoe

2. **CCD-TR3400E**
   - Deleting the EZ connector and the EZ-21 Board.
   - Changing the Memory Control IC (IC701, IC702 on the MM-32 Board)
   - Changing the RGB Decoder IC (IC902 on the VF-96 Board)
   - Changing the Mode Control IC (IC1952 on the HI-40 Board)
   - Changing the Video, Y. Chroma and Servo/System Control IC (IC102, 105, 106, 117 on the VC-177 Board)
   - Changing the Accessory Shoe

MC-Service

Hi8 VIDEO CAMERA RECODER

MICROFILM

SONY®

Table for difference of Functions

		CCD-TR3300E		CCD-TR3100E	CCD-TR3400E
		AEP, UK	E, AUS, HK, JE		
Remote Commander		RMT-716	RMT-715	RMT-717	
Viewfinder		Color EVF		B/W EVF *1	Coler EVF *2
Digital Memory		○	○	○	○
Easy Connector		○	○		
VTR REC (Line in)			○		○
Lens	Optical	21 ✕	21 ✕	21 ✕	21 ✕
	Digital	42 ✕	84 ✕	42 ✕	210 ✕

* 1: with VF-104 Board
2: with VF-95, VF-96, LB-45 Board and FP-420 Flexible Board

3. Changing the Mounted board

	CCD-TR3300E		CCD-TR3100E	CCD-TR3400E
	AEP, UK	E, AUS, JE		
VC-177 BOARD	A-7092-986-A	A-7092-987-A	A-7093-179-A	A-7093-181-A
HI-40 BOARD	A-7092-933-A		A-7093-178-A	A-7093-180-A
MM-32 BOARD	A-7072-700-A		A-7073-040-A	
VF-96 BOARD	A-7072-756-A		——	A-7073-044-A
VF-104 BOARD	——		A-7066-841-A	——
FK-67 BOARD	A-7072-739-A	A-7072-699-A	A-7073-041-A	A-7072-758-A
EZ-21 BOARD	A-7072-550-B		——	
FP-386 Flexible Board	○		——	○
FP-490 Flexible Board	——		○	——
DD-87 BOARD	A-7092-871-A		A-7092-916-A	A-7092-871-A

SPECIFICATIONS

Video camera recorder

System

Video recording system
Two rotary heads, Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8mm video format cassette (Hi8 or standard 8 mm)
Recording/Playback time
SP mode: 2 hours (E5/P5-120) (AEP,UK)
SP mode: 1 hours 30 minutes (E5/P5-90)(AUS,E,HK)
LP mode: 4 hours (E5/P5-120) (AEP,UK)
LP mode: 3 hours (E5/P5-90) (AUS,E,HK)
Fastforward/rewind time
Approx. 5 min. (E5/P5-120)
Image device
CCD (Charge Coupled Device)
Viewfinder
CCD-TR3400E:
Electronic viewfinder (colour)
CCD-TR3100E:
Electronic viewfinder (Monochrome)
Lens
Combined power zoom lens
Filter diameter 52 mm (2 $^1/_8$ in.)
21 x (Optical)
42 x (Digital): CCD-TR3100E
210 x (Digital): CCD-TR3400E
Focal distance
3.9 – 81.9 mm ($^5/_{32}$ – 3 $^1/_4$ in.)
37 – 777 mm (1 $^1/_2$ – 30 $^5/_8$ in.) when converted to a 35 mm still camera
Colour temperature
Auto,
One push white balance ⛅,
Indoor ☼ 3,200 K,
Outdoor ☀ 5,800 K
Minimum illumination
2 lux at F1.6
0.1 lux at F1.6 when using the Slow shutter function
Illumination range
2 lux to 100,000 lux
Recommended illumination
More than 100 lux

Input and output connectors

S video input/output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced
Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced
Video input/output
Phono jack, 1 Vp-p, 75 ohms, unbalanced
Audio input/output
Phono jacks (2: stereo L and R)
Input 327 mV, input impedance more than 47 kilohms
Output 327 mV, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT
Special minijack, DC 5 V
Headphone jack
Stereo minijack
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kilohms (ø 3.5 mm)
Stereo type

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption
CCD-TR3400E:
4.4 W during camera recording
CCD-TR3100E:
4.4 W during camera recording
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions (Approx.)
CCD-TR3400E:
110 x 110 x 215 mm
(4 $^3/_8$ x 4 $^3/_8$ x 8 $^1/_2$ in.) (w/h/d)
CCD-TR3100E:
110 x 110 x 222 mm
(4 $^3/_8$ x 4 $^3/_8$ x 8 $^7/_8$ in.) (w/h/d)
Mass (Approx.)
CCD-TR3400E:
910 g (2 Ib) excluding the battery pack, lithium battery, cassette, lens cap and shoulder strap
1.1 kg (2 lb 6 oz) including the battery pack NP-F530, lithium battery CR 2025, cassette E5/P5-120, lens cap and shoulder strap
CCD-TR3100E:
910 g (2 lb) excluding the battery pack, lithium battery, cassette, lens cap and shoulder strap
1.1 kg (2 lb 6 oz) including the battery pack NP-F530, lithium battery CR 2025, cassette E5/P5-120, lens cap and shoulder strap
Microphone
Stereo type
Supplied accessories
See page 3.

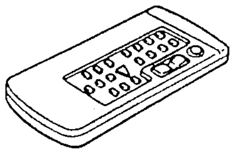
AC power adaptor

Power requirements
110 – 240 V AC, 50/60 Hz
Power consumption
25 W
Output voltage
DC OUT: 8.4 V, 1.9 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode
Application
Sony battery packs NP-F530, NP-F730, NP-F930 lithium ion type
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions (Approx.)
81 x 45 x 163 mm (3 $^1/_4$ x 1 $^{13}/_{16}$ x 6 $^1/_2$ in.) (w/h/d) including projecting parts and controls
Mass (Approx.)
560 g (1 lb 3 oz)

Design and specifications are subject to change without notice.

Supplied accessories

1



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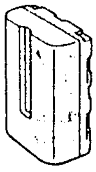

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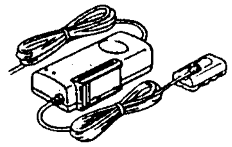

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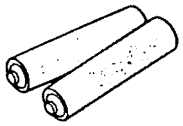
5



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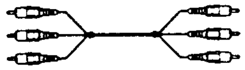
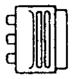
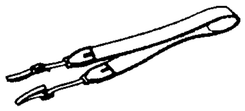


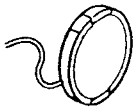
7



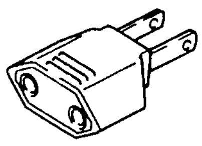
8



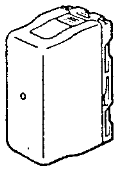
9



10



11



1 **Wireless Remote Commander** (1)

2 **NP-F530 Battery pack** (1)

3 **AC-V316 AC power adaptor** (1)

4 **CR2025 Lithium Battery** (1)
The lithium battery is already installed in your camcorder.

5 **R6 (size AA) battery for Remote Commander** (2)

6 **A/V connecting cable** (1)

7 **21 pin adaptor** (1)
CCD-TR3100E

8 **Shoulder strap** (1)

9 **Lens cap** (1)
This lens cap is already set on your camcorder.

10 **2 pin conversion adaptor** (1)
CCD-TR3400E

11 **Battery case** (1)
CCD-TR3100E

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3. Modification of D Page Data 21

Note: ( ): The page above correspond to CCD-TR2200E/TR2300E/TR3300E Service Manual.

☞ : indicated additional portion

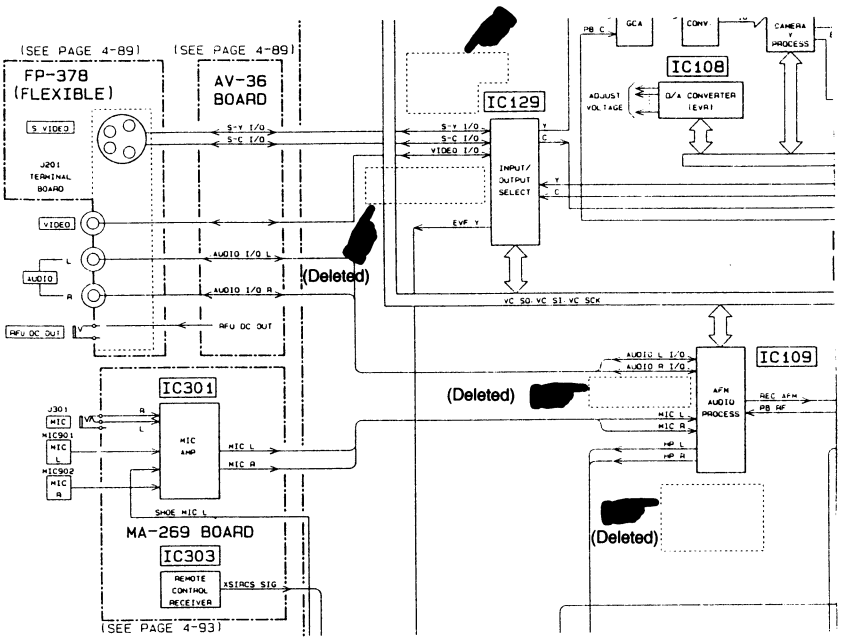
☞ : indicated changed portion

☞ : indicated deleted portion

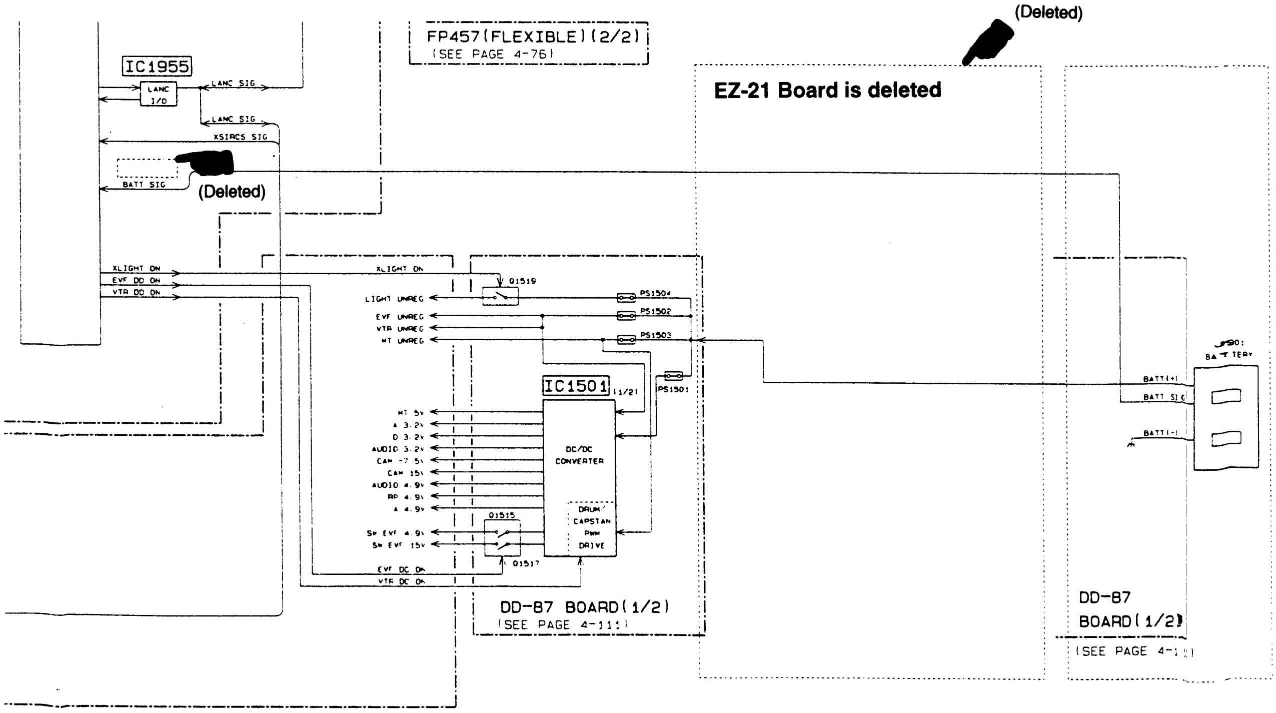
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

(Page 3-1)

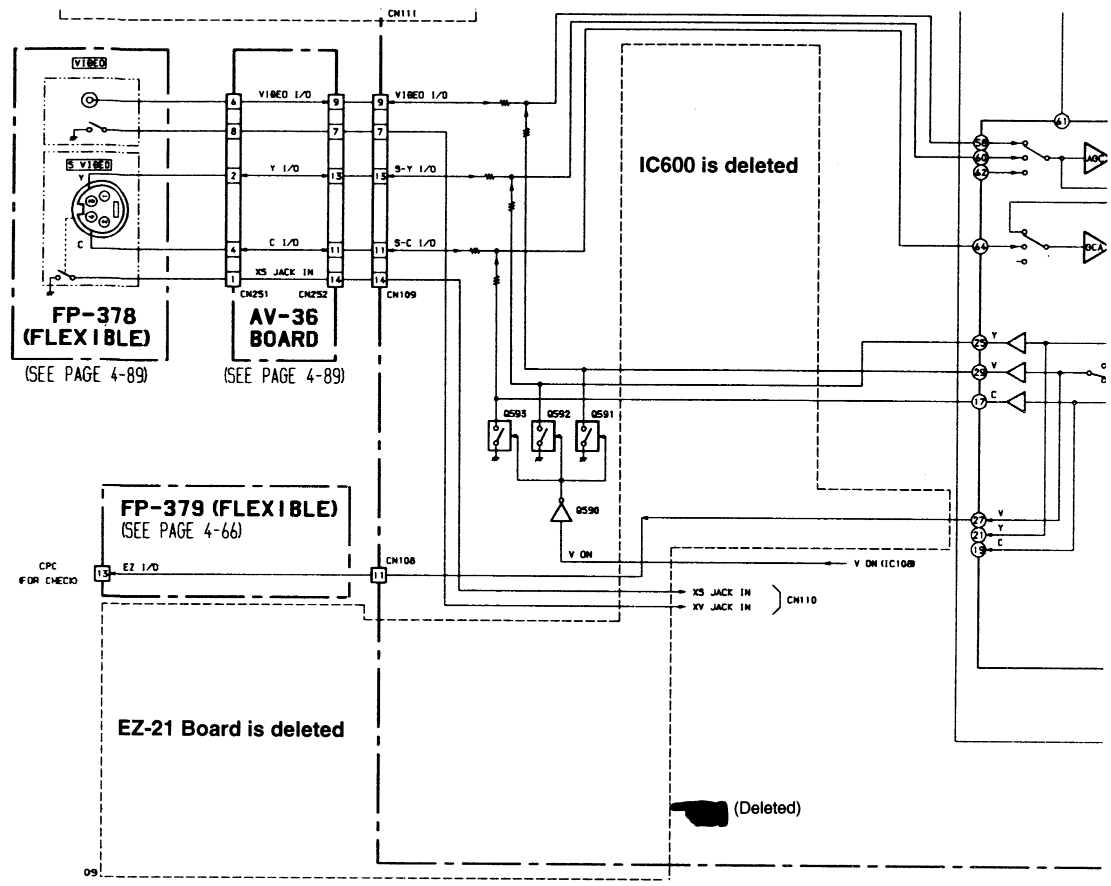

(Deleted)
(SEE PAGE 4-89)
FP-378
(FLEXIBLE)
S VIDEO
J201
TERMINAL
BOARD
VIDEO
AUDIO
L
R
RFU DC OUT
(SEE PAGE 4-89)
AV-36
BOARD
S-Y I/O
S-C I/O
AUDIO I/O L
AUDIO I/O R
RFU DC OUT
(Deleted)
IC129
S-Y I/O
S-C I/O
VIDEO I/O
INPUT/
OUTPUT
SELECT
EVF Y
Y
C
VC SO VC SI VC SCK
PB C
GCA
CONV
CAMERA
Y
PROCESS
IC108
ADJUST
VOLTAGE
D/A CONVERTER
(EVR)
IC109
AUDIO L I/O
AUDIO R I/O
AFM
AUDIO
PROCESS
REC AFM
PB RF
MIC L
MIC R
HP L
HP R
(Deleted)
(Deleted)
IC301
J301
MIC
MIC901
MIC
L
MIC902
MIC
R
MIC
AMP
MIC L
MIC R
SHOE MIC L
MA-269 BOARD
IC303
REMOTE
CONTROL
RECEIVER
XSIRCS SIG
(SEE PAGE 4-93)

(Page 3-3,4)

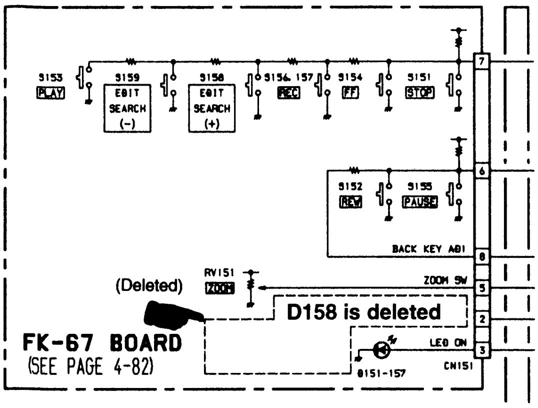

(Deleted)
FP457 (FLEXIBLE) (2/2)
(SEE PAGE 4-76)
EZ-21 Board is deleted
IC1955
LANC
I/O
LANC SIG
LANC SIG
XSIRCS SIG
BATT SIG
(Deleted)
XLIGHT ON
EVF DC ON
VTR DC ON
XLIGHT ON
Q1519
LIGHT UNREG
EVF UNREG
VTR UNREG
MT UNREG
PS1504
PS1502
PS1503
PS1501
IC1501 (1/2)
MT 5V
A 3.2V
D 3.2V
AUDIO 3.2V
CAM -7.5V
CAM 15V
AUDIO 4.9V
RP 4.9V
A 4.9V
SW EVF 4.9V
SW EVF 15V
DC/DC
CONVERTER
DRUM/
CAPSTAN
PWM
DRIVE
Q1515
Q1517
EVF DC ON
VTR DC ON
DD-87 BOARD (1/2)
(SEE PAGE 4-111)
DD-87
BOARD (1/2)
(SEE PAGE 4-111)
BATTERY
BATT (+)
BATT SIG
BATT (-)

3-2. CAMERA BLOCK DIAGRAM

(Page 3-6)

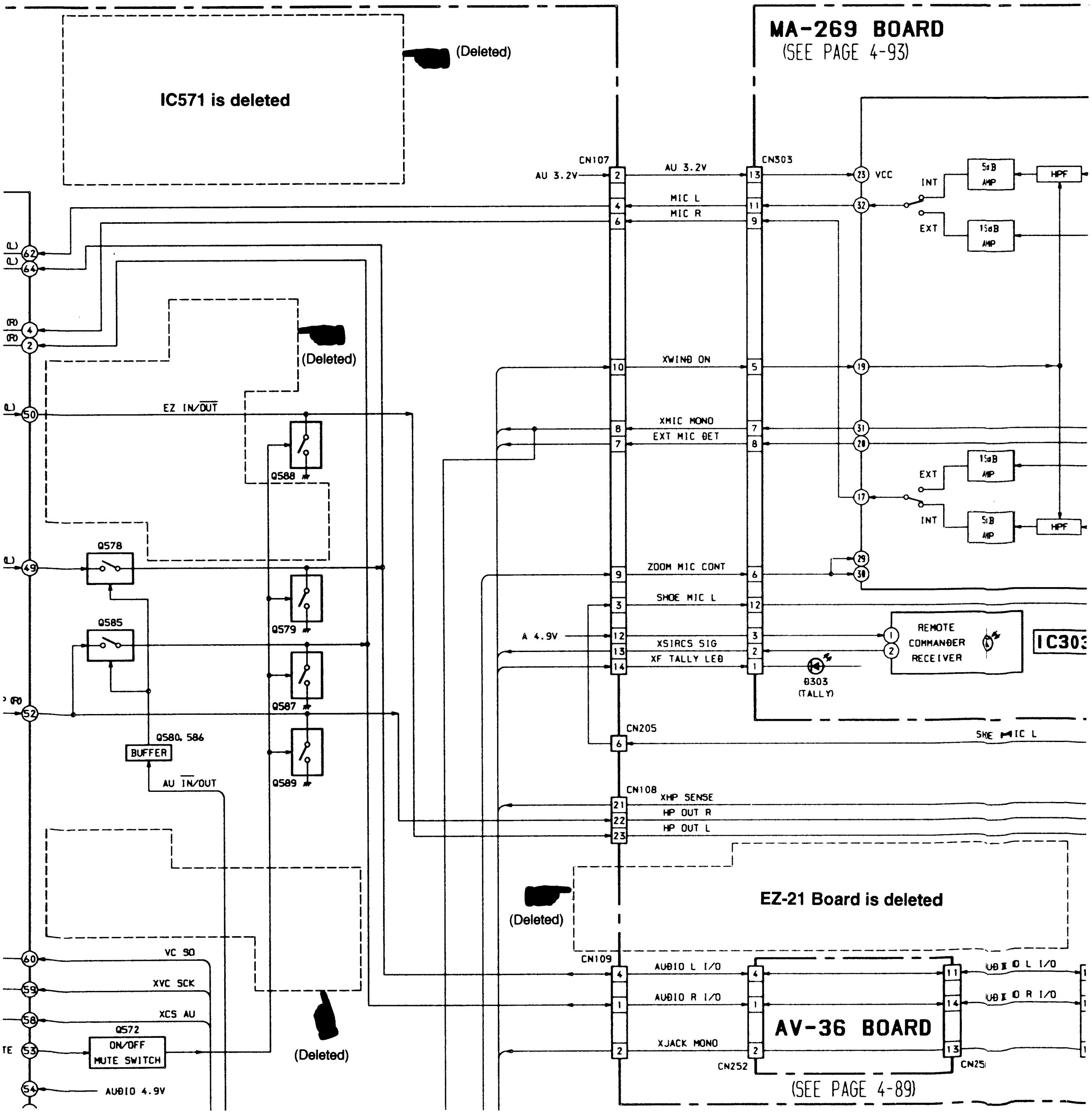

CN111
VIDEO
S VIDEO
Y
C
VIDEO I/O
Y I/O
C I/O
XS JACK IN
CN251
CN252
FP-378 (FLEXIBLE)
(SEE PAGE 4-89)
AV-36 BOARD
(SEE PAGE 4-89)
VIDEO I/O
S-Y I/O
S-C I/O
CN109
IC600 is deleted
Q593
Q592
Q591
Q590
V ON
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
CPC (FOR CHECK)
EZ I/O
CN108
V ON (IC108)
XS JACK IN
XV JACK IN
CN110
EZ-21 Board is deleted
(Deleted)
Y
V
C
V
Y
C
AGC

3-5. MODE CONTROL BLOCK DIAGRAM (Page 3-23)



S153 PLAY
S159 EDIT SEARCH (-)
S158 EDIT SEARCH (+)
S156, 157 REC
S154 FF
S151 STOP
S152 REW
S155 PAUSE
BACK KEY AD1
RV151 ZOOM
ZOOM SW
(Deleted)
D158 is deleted
LED ON
D151-157
CN151
7
6
8
5
2
3
FK-67 BOARD
(SEE PAGE 4-82)

3-6. AUDIO BLOCK DIAGRAM (Page 3-26)

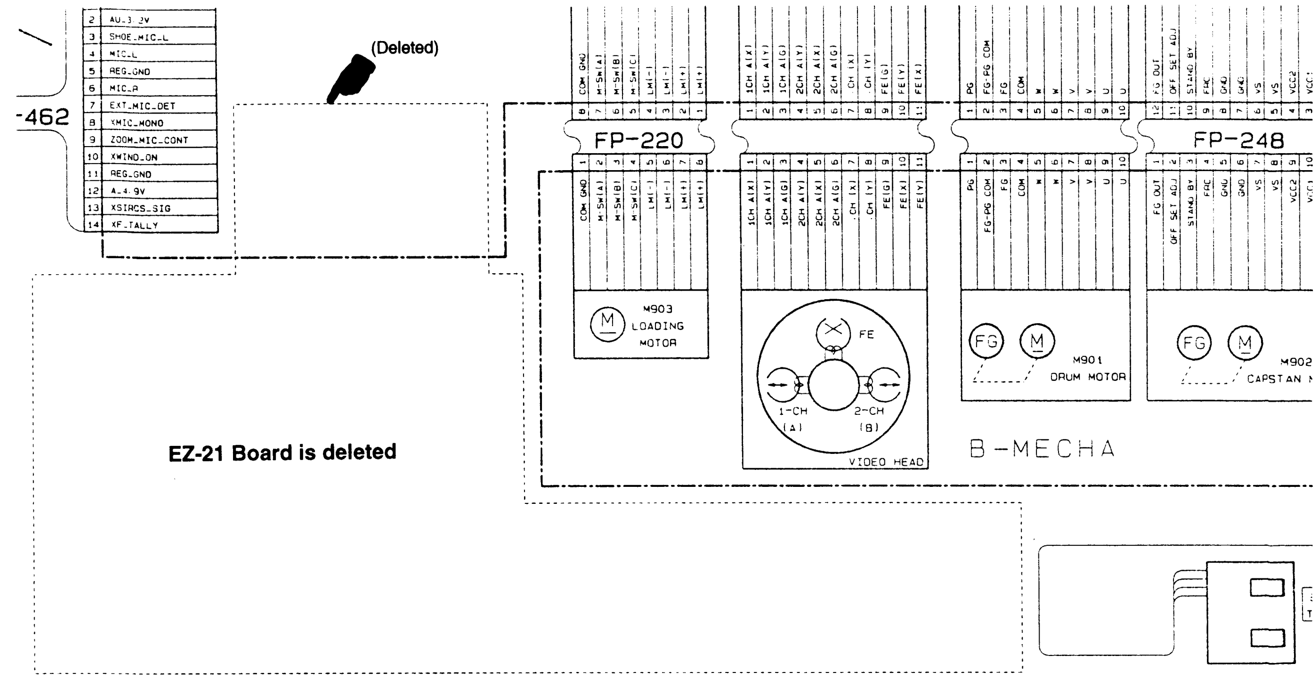


IC571 is deleted
(Deleted)
MA-269 BOARD
(SEE PAGE 4-93)
CN107
AU 3.2V
CN303
AU 3.2V
MIC L
MIC R
VCC
INT
EXT
5dB AMP
15dB AMP
HPF
XWIND ON
XMIC MONO
EXT MIC DET
ZOOM MIC CONT
SHOE MIC L
A 4.9V
XSIRCS SIG
XF TALLY LED
REMOTE COMMANDER RECEIVER
IC303
D303 (TALLY)
CN205
SHOE MIC L
CN108
XHP SENSE
HP OUT R
HP OUT L
EZ-21 Board is deleted
CN109
AUDIO L I/O
AUDIO R I/O
XJACK MONO
AV-36 BOARD
(SEE PAGE 4-89)
CN252
CN251
VIDEO L I/O
VIDEO R I/O
EZ IN/OUT
Q588
Q578
Q579
Q585
Q587
Q589
Q580, 586 BUFFER
AU IN/OUT
VC SO
XVC SCK
XCS AU
Q572 ON/OFF MUTE SWITCH
AUDIO 4.9V
62
64
4
2
50
49
52
60
59
58
53
54

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM

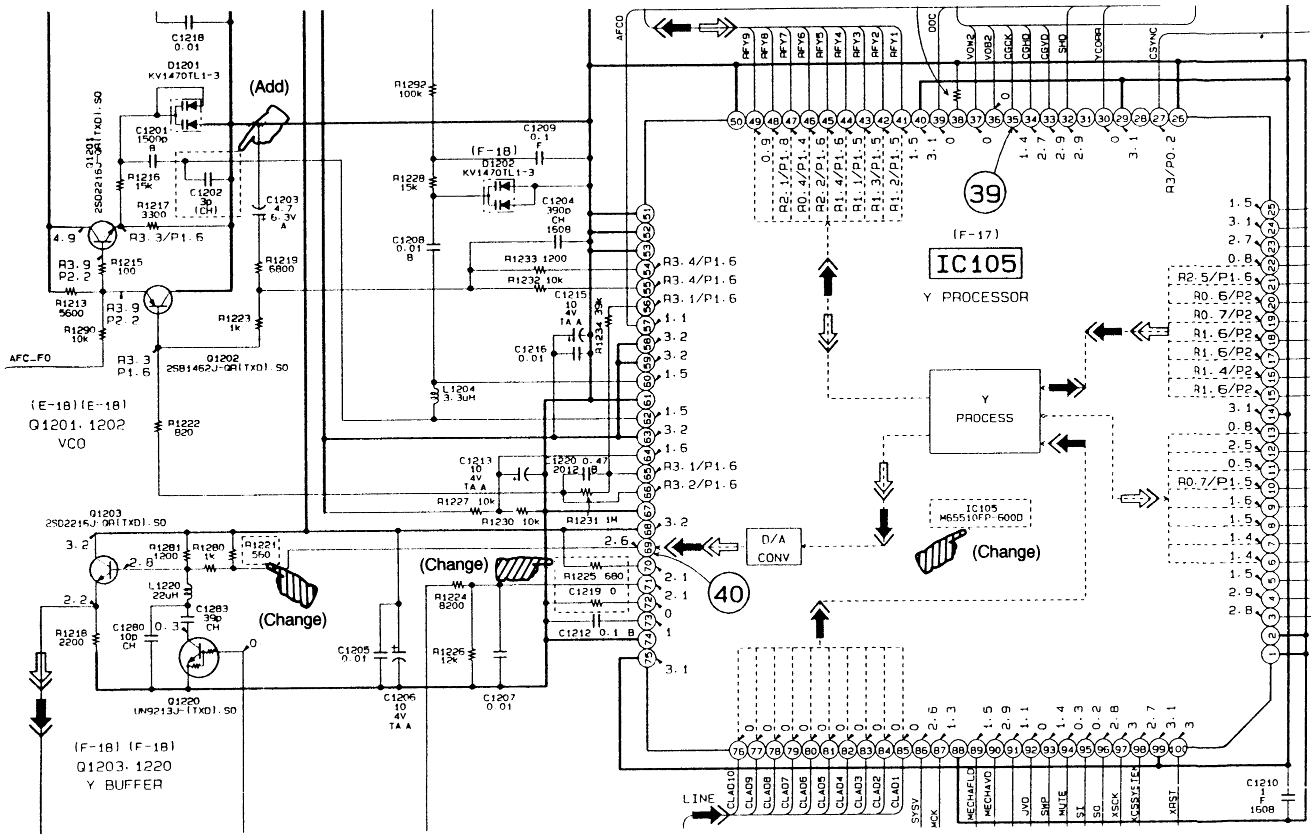
(Page 4-1, 2)


-462
2 AU_3.2V
3 SHOE_MIC_L
4 MIC_L
5 REG_GND
6 MIC_R
7 EXT_MIC_DET
8 XMIC_MONO
9 ZOOM_MIC_CONT
10 XWIND_ON
11 REG_GND
12 A_4.9V
13 XSIRCS_SIG
14 XF_TALLY
(Deleted)
EZ-21 Board is deleted
FP-220
FP-248
COM GND
M-SW(A)
M-SW(B)
M-SW(C)
LM(-)
LM(+)
1CH A(X)
1CH A(Y)
1CH A(G)
2CH A(Y)
2CH A(X)
2CH A(G)
CH (X)
CH (Y)
FE(G)
FE(Y)
FE(X)
PG
FG-PG COM
FG
COM
W
V
U
FG OUT
OFF SET ADJ
STAND BY
FRC
GND
VS
VCC2
M903
LOADING
MOTOR
FE
1-CH
(A)
2-CH
(B)
VIDEO HEAD
FG
M
M901
DRUM MOTOR
M902
CAPSTAN M
B-MECHA

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

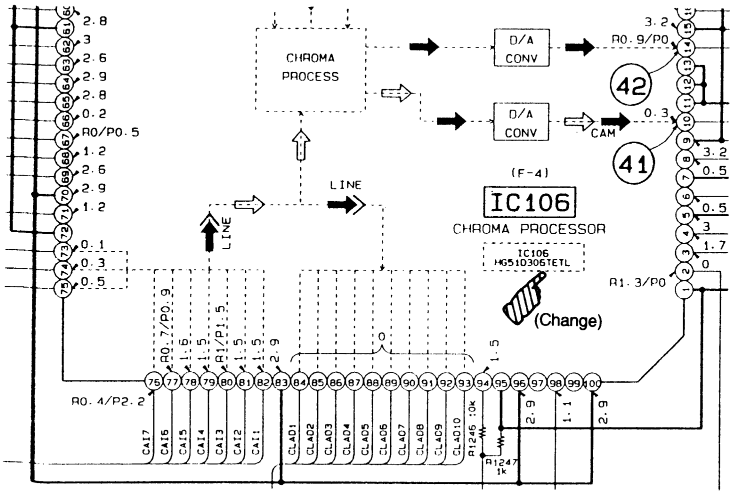
VC-177 BOARD (5/14) (CL BLOCK)

(Page 4-31, 32, Location F-6 – J-12)



(Add)
(Change)
(Change)
(Change)
C1218 0.01
D1201 KV1470TL1-3
C1201 1500p B
R1216 15k
C1202
R1217 3300
C1203 4.7 6.3V
Q1201 2SD2216J-QR(TX).SO
Q1202 2SB1462J-QR(TX).SO
R1215 100
R1213 5600
R1290 10k
R1219 6800
R1223 1k
AFC_FO
R1222 820
(E-18) (E-18)
Q1201, 1202
VCO
Q1203 2SD2215J-QR(TX).SO
R1281 1200
R1280 1k
R1221 560
L1220 22uH
C1283 39p CH
R1218 2200
C1280 10p CH
Q1220 UN9213J-(TX).SO
(F-18) (F-18)
Q1203, 1220
Y BUFFER
R1292 100k
R1228 15k
C1208 0.01 B
C1209 0.1 F
(F-18)
D1202 KV1470TL1-3
C1204 390p CH
1508
R1233 1200
R1232 10k
C1215 10 4V TA A
R1234 39k
C1216 0.01
L1204 3.3uH
C1213 10 4V TA A
C1220 0.47 2012
R1227 10k
R1230 10k
R1231 1M
R1225 680
C1219 0
R1224 8200
C1212 0.1 B
C1205 0.01
R1226 12k
C1206 10 4V TA A
C1207 0.01
(F-17)
IC105
Y PROCESSOR
Y PROCESS
D/A CONV
IC105 M65510FP-600D
39
40
AFCO
RFY9 RFY8 RFY7 RFY6 RFY5 RFY4 RFY3 RFY2 RFY1
DOC VOW2 VOB2 CGCK CGHD SHD YCOMP CSYNC
LINE
CLAD10 CLAD9 CLAD8 CLAD7 CLAD6 CLAD5 CLAD4 CLAD3 CLAD2 CLAD1
SYSV MCK MECHAFLD MECHAVD JVD SWP MUTE SI SO XSCK XCSSYSTE XRST
C1210 1 F 1508

(Page 4-33 Location I-19)



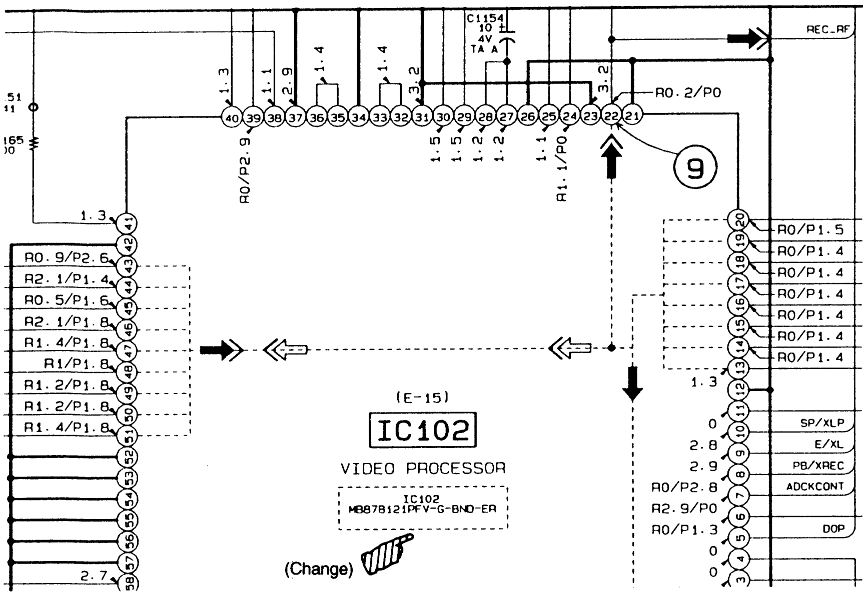
CHROMA PROCESS
D/A CONV
D/A CONV
CAM
42
41
LINE
LINE
(F-4)
IC106
CHROMA PROCESSOR
IC106 HG51D306TETL
(Change)
R1. 3/P0
R0/P0.5
R0.9/P0
R0.4/P2.2
R0.7/P0.9
R1/P1.5
CA17 CA16 CA15 CA14 CA13 CA12 CA11
CLAD1 CLAD2 CLAD3 CLAD4 CLAD5 CLAD6 CLAD7 CLAD8 CLAD9 CLAD10
R1246 10k
R1247 1k

CCD-TR3300E			
Ref. No.	**Part No.**	**Description**	**Remark**
C1219	1-135-149-21	TANTAL CHIP 2.2uF	20% 10V
IC105	8-759-357-64	IC F45819BPZ-TEB	
IC106	8-759-387-35	IC HG51CS276TETL	
R1221	1-216-820-11	METAL CHIP 820	5% 1/16W
R1225	1-216-829-11	METAL CHIP 4.7K	5% 1/16W

CCD-TR3100E/TR3400E			
Ref. No.	**Part No.**	**Description**	**Remark**
C1202	1-162-908-11	CERAMIC CHIP 3PF	0.25 PF 50V
C1219	1-216-296-11	CONDUCTOR CHIP (3216)	
IC105	8-759-457-06	IC M65510FP-600D	
IC106	8-759-457-05	IC HG51D306TETL	
R1221	1-216-818-11	METAL GLAZE 560	5% 1/16W
R1225	1-216-819-11	METAL GLAZE 680	5% 1/16W

VC-177 BOARD (6/14) (RF, ER BLOCK)

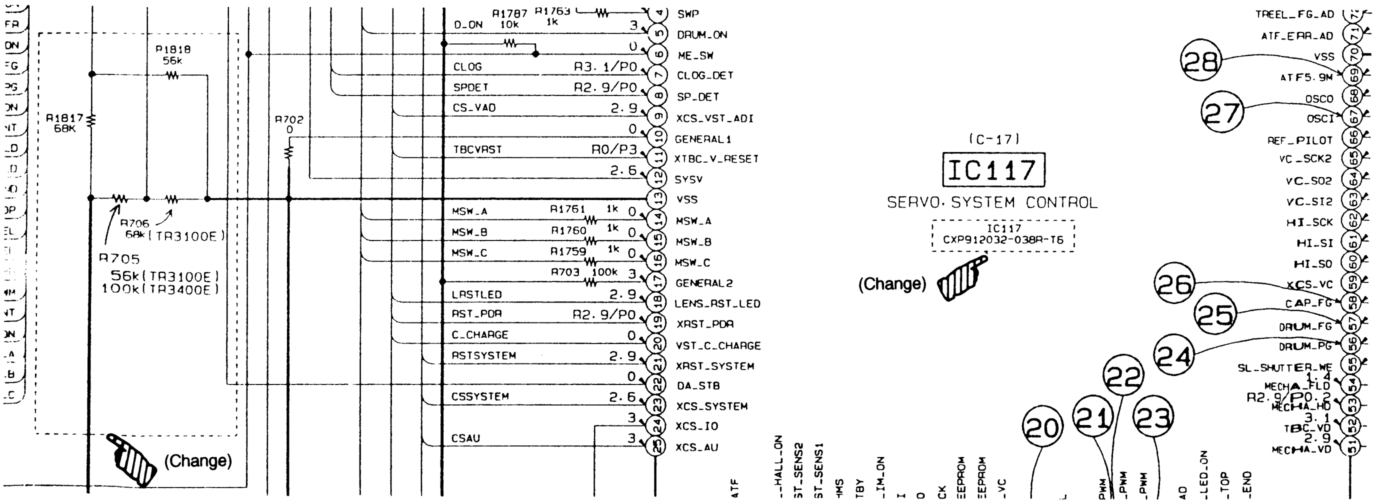
(Page 4-37, Location F-7)


(E-15)
IC102
VIDEO PROCESSOR
IC102
MB87B121PFV-G-BND-ER
(Change)
REC_RF
R0. 2/P0
SP/XLP
E/XL
PB/XREC
ADCKCONT
DOP
C1154
10
4V
TA

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
IC102	8-759-357-62	IC MB87B108DPFV-G-BND-ER		IC102	8-759-447-79	IC MB87B121PFV-G-BND-ER	

VC-177 BOARD (9/14) (MC BLOCK)

(Page 4-45, 46, Location H-5 – K-12)

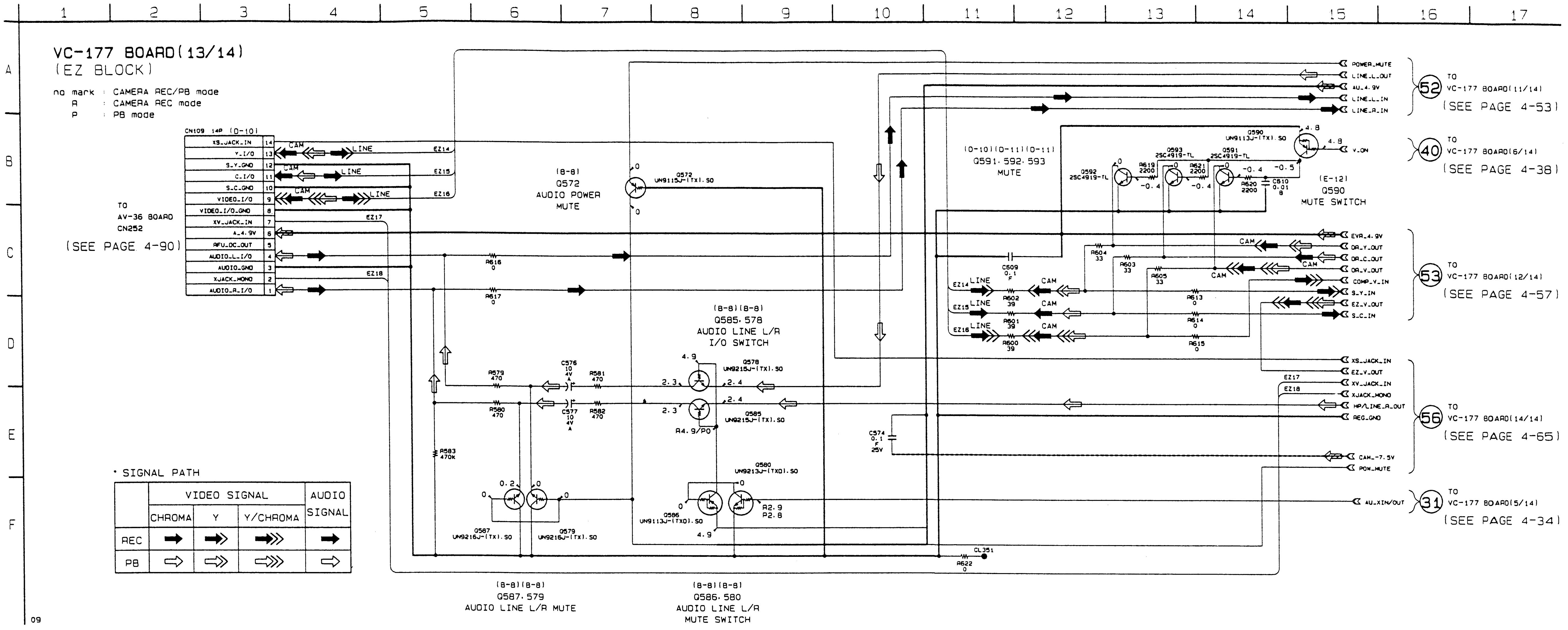

(C-17)
IC117
SERVO· SYSTEM CONTROL
IC117
CXP912032-038R-T6
(Change)
R1818
56k
R1817
68K
R702
0
R706
68k (TR3100E)
R705
56k (TR3100E)
100k (TR3400E)
(Change)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
IC117	8-752-872-77	IC CXP912032-010R-T6		IC117	8-752-882-20	IC CXP912032-038R	
R705	1-216-837-11	METAL CHIP 22K	5% 1/16W (TR3300E: AEP, UK)	R705	1-216-842-11	METAL GLAZE 56K	5% 1/16W (TR3100E)
R705	1-216-845-11	METAL CHIP 100K	5% 1/16W (TR3300E: AUS, E)	R705	1-216-845-11	METAL GLAZE 100K	5% 1/16W (TR3400E)
R706	1-216-845-11	METAL CHIP 100K	5% 1/16W (TR3300E: AEP, UK)	R706	1-216-843-11	METAL GLAZE 68K	5% 1/16W (TR3100E)
R1817	1-216-845-11	METAL CHIP 100K	5% 1/16W	R1817	1-216-843-11	METAL GLAZE 68K	5% 1/16W
R1818	1-216-841-11	METAL CHIP 47K	5% 1/16W	R1818	1-216-842-11	METAL GLAZE 56K	5% 1/16W

MC-Service

VC-177 (13/14) (VIDEO IN/OUT (2)) SCHEMATIC DIAGRAM

– Ref No. VC-177 BOARD: 10,000 series –

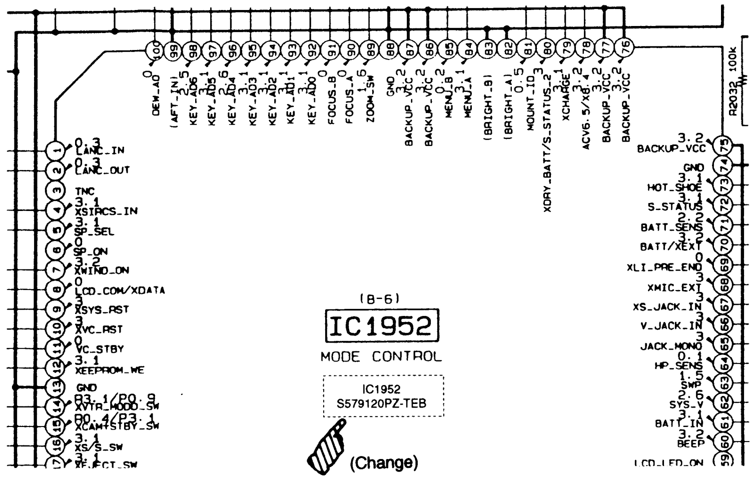

VC-177 BOARD(13/14)
(EZ BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
CN109 14P (D-10)
TO AV-36 BOARD CN252
(SEE PAGE 4-90)
(B-8) Q572 AUDIO POWER MUTE
(B-8)(B-8) Q585, 578 AUDIO LINE L/R I/O SWITCH
(D-10)(D-11)(D-11) Q591, 592, 593 MUTE
(E-12) Q590 MUTE SWITCH
(B-8)(B-8) Q587, 579 AUDIO LINE L/R MUTE
(B-8)(B-8) Q586, 580 AUDIO LINE L/R MUTE SWITCH
TO VC-177 BOARD(11/14) (SEE PAGE 4-53)
TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
TO VC-177 BOARD(12/14) (SEE PAGE 4-57)
TO VC-177 BOARD(14/14) (SEE PAGE 4-65)
TO VC-177 BOARD(5/14) (SEE PAGE 4-34)
• SIGNAL PATH
VIDEO SIGNAL
AUDIO SIGNAL
CHROMA
Y
Y/CHROMA
REC
PB
09

CCD-TR3300E (E, Australian)						CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description	Remark
C572	1-135-201-11	TANTAL CHIP	10uF	20%	4V			Delete	
C573	1-135-201-11	TANTAL CHIP	10uF	20%	4V				
C601	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V				
C602	1-162-823-11	CERAMIC CHIP	0.47uF	10%	16V				
C603	1-162-823-11	CERAMIC CHIP	0.47uF	10%	16V				
C604	1-162-823-11	CERAMIC CHIP	0.47uF	10%	16V				
C605	1-162-823-11	CERAMIC CHIP	0.47uF	10%	16V				
CN203	1-774-641-21	CONNECTOR, FFC/FPC							
IC501	8-759-075-68	IC TC4066BFS-EL							
IC600	8-759-284-49	IC NJM2285V-TE2							
Q573	8-729-429-18	TRANSISTOR UN9213							
Q574	8-729-037-76	TRANSISTOR UN9215J-(TX), SO							
Q575	8-729-037-77	TRANSISTOR UN946J-(TX), SO							
Q576	8-729-037-61	TRANSISTOR UN9113J-(TX).SO							
Q577	8-729-429-18	TRANSISTOR UN9113							
Q581	8-729-037-61	TRANSISTOR UN9113J-(TX).SO							
Q582	8-729-037-76	TRANSISTOR UN9215J-(TX).SO							
Q583	8-729-037-77	TRANSISTOR UN9216J-(TX).SO							
Q584	8-729-429-18	TRANSISTOR UN9213							

CCD-TR3300E (E, Australian)						CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description	Remark
R572	1-216-817-11	METAL CHIP	470	5%	1/16W			Delete	
R573	1-216-817-11	METAL CHIP	470	5%	1/16W				
R574	1-216-817-11	METAL CHIP	470	5%	1/16W				
R575	1-216-817-11	METAL CHIP	470	5%	1/16W				
R576	1-216-845-11	METAL CHIP	100K	5%	1/16W				
R577	1-216-841-11	METAL CHIP	47K	5%	1/16W				
R578	1-216-845-11	METAL CHIP	100K	5%	1/16W				
R606	1-216-821-11	METAL CHIP	1K	5%	1/16W				
R607	1-216-827-11	METAL CHIP	3.3K	5%	1/16W				
R608	1-216-821-11	METAL CHIP	1K	5%	1/14W				

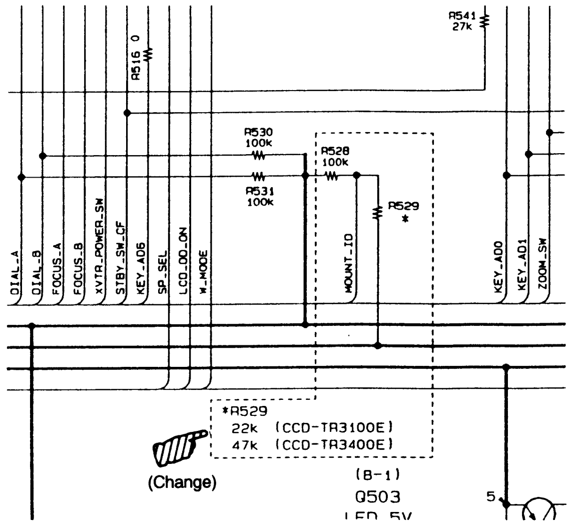
HI-40 BOARD (2/3) (HI BLOCK)

(Page 4-73, Location G-13)


(B-6)
IC1952
MODE CONTROL
IC1952
S579120PZ-TEB
(Change)

HI-40 BOARD (3/3) (CN BLOCK)

(Page 4-76, Location E-11)

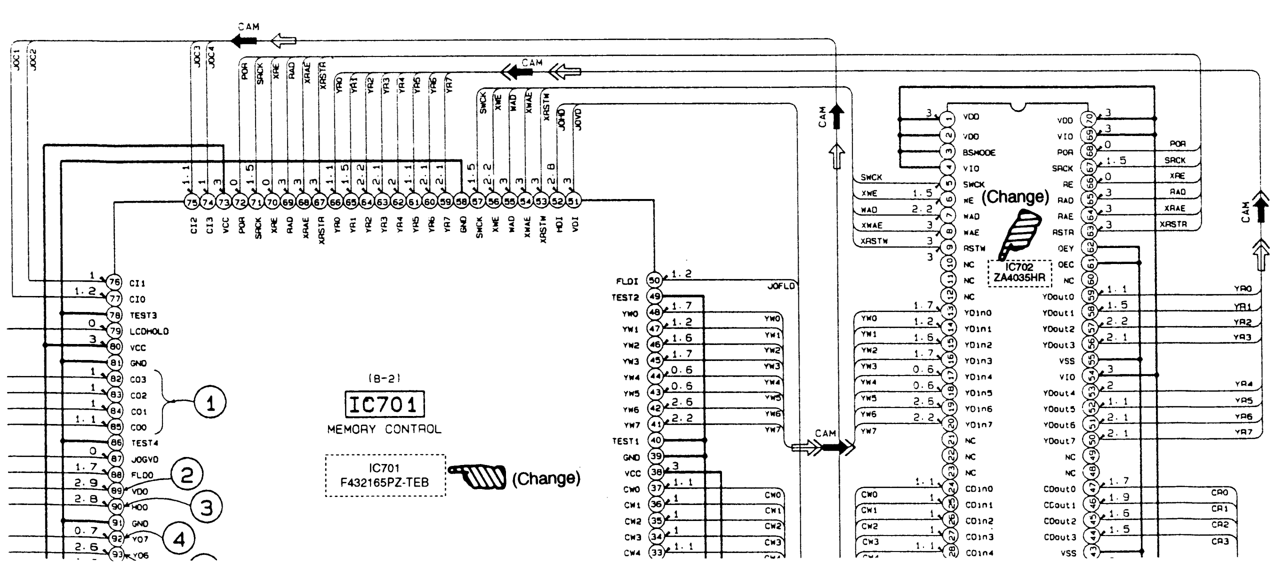

R530
100K
R531
100K
R528
100K
R529
*
*R529
22k (CCD-TR3100E)
47k (CCD-TR3400E)
(B-1)
Q503
(Change)

CCD-TR3300E					
Ref. No.	Part No.	Description			Remark
IC1952	8-759-399-20	IC S579109PZ-TEB			
R528	1-216-837-11	METAL CHIP	22K	5%	1/16W
R529	1-216-845-11	METAL CHIP	100K	5%	1/16W

CCD-TR3400E					
Ref. No.	Part No.	Description			Remark
IC1952	8-759-457-80	IC S579120PZ-TEB			
R528	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R529	1-216-837-11	METAL GLAZE	22K	5%	1/16W (TR3100E)
R529	1-216-841-11	METAL GLAZE	47K	5%	1/16W (TR3400E)

MM-32 BOARD

(Page 4-79, 80, Location D-9, 15)


CAM
(B-2)
IC701
MEMORY CONTROL
IC701
F432165PZ-TEB
(Change)
IC702
ZA4035HR
(Change)
①
②
③
④

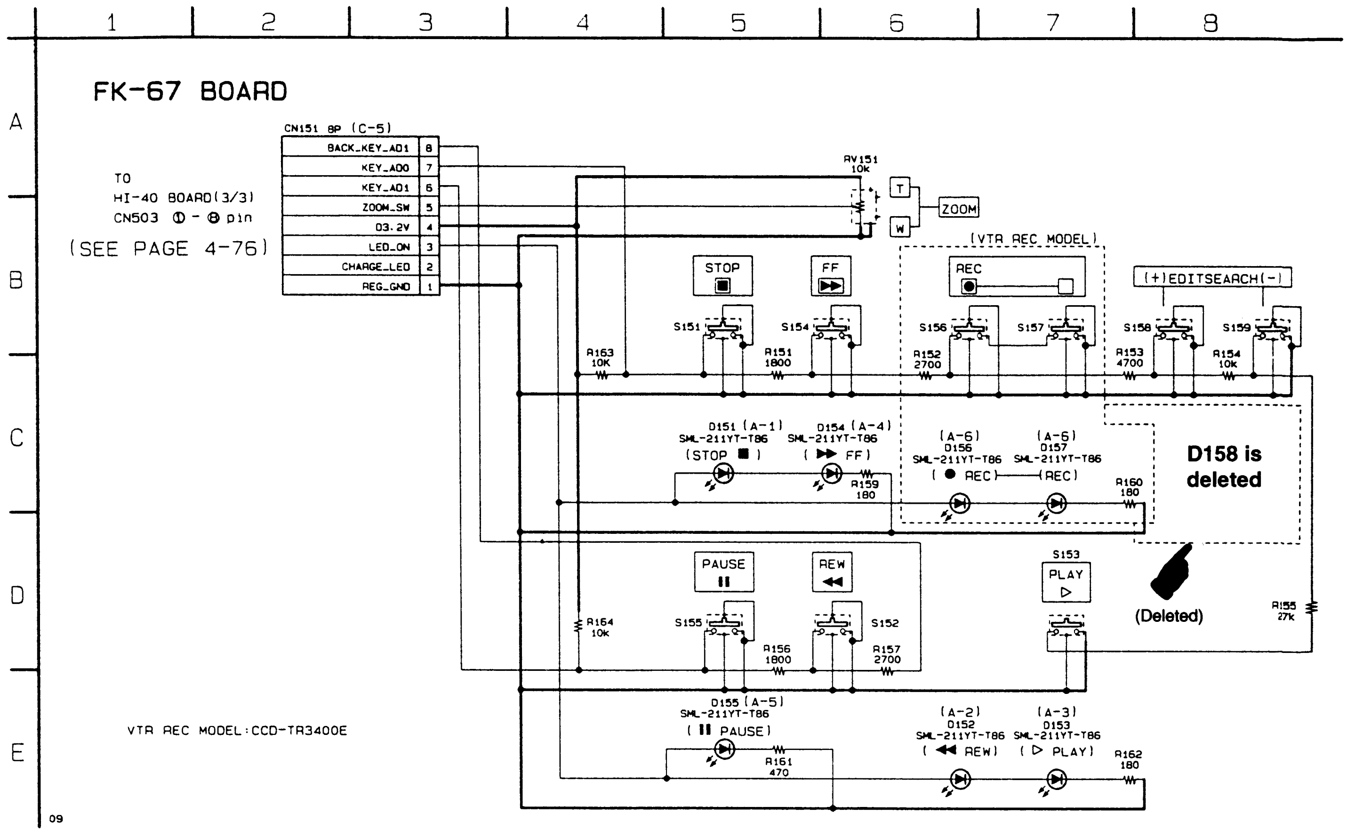
CCD-TR3300E			
Ref. No.	Part No.	Description	Remark
IC701	8-759-380-21	IC F432153PZ-TEB	
IC702	8-759-428-88	IC ZA4038AR-T6	

CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark
IC701	8-759-445-65	IC F432165PZ-TEB	
IC702	8-759-458-00	IC ZA4035HR	

FK-67 BOARD (FUNCTION KEY) SCHEMATIC DIAGRAM

– Ref No. FK-67 BOARD: 3,000 series –

(Page 4-82 – 83)


FK-67 BOARD
TO
HI-40 BOARD(3/3)
CN503 ① - ⑧ pin
(SEE PAGE 4-76)
CN151 8P (C-5)
BACK_KEY_AD1
KEY_AD0
KEY_AD1
ZOOM_SW
03.2V
LED_ON
CHARGE_LED
REG_GND
RV151
10k
ZOOM
[VTR REC MODEL]
STOP
FF
REC
(+)EDITSEARCH(-)
S151
S154
S156
S157
S158
S159
D151 (A-1)
SML-211YT-T86
(STOP ■)
D154 (A-4)
SML-211YT-T86
(▶▶ FF)
D156
D157
(● REC)
(REC)
D158 is deleted
PAUSE
REW
PLAY
S153
S155
S152
(Deleted)
D155 (A-5)
SML-211YT-T86
(II PAUSE)
D152
D153
(◀◀ REW)
(▷ PLAY)
VTR REC MODEL:CCD-TR3400E

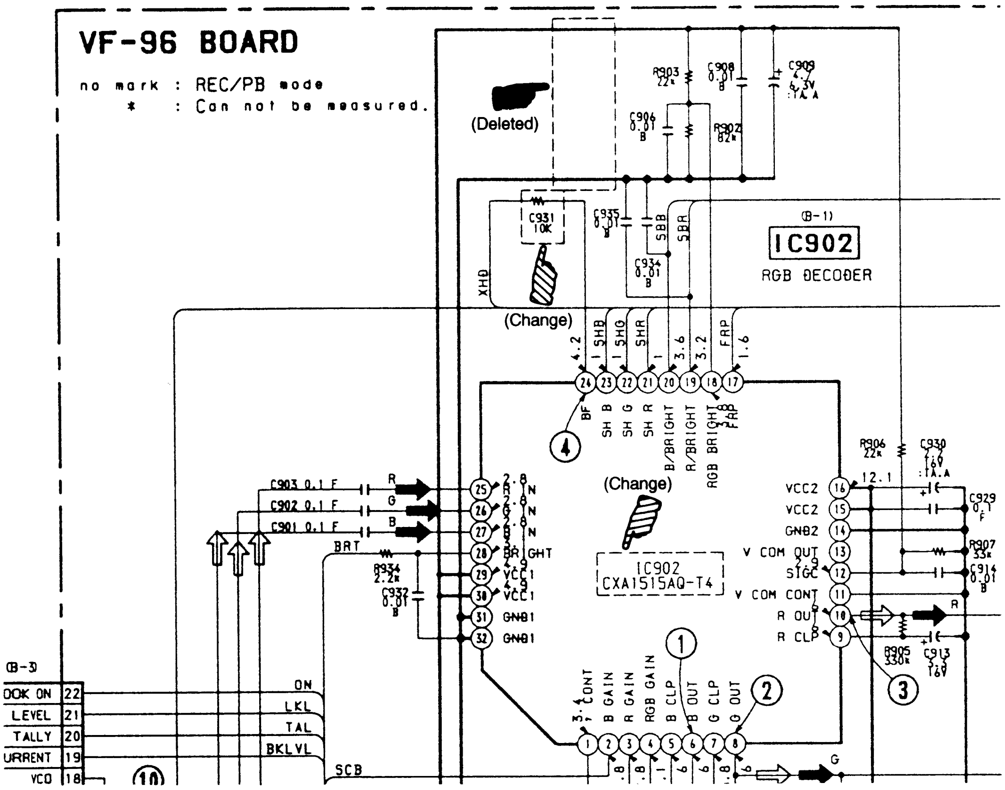
CCD-TR3300E			
Ref. No.	Part No.	Description	Remark
D158	8-719-057-99	DIODE SML-211YT-T86 (CHARGE)	

CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark

MC-Service

VF-96 BOARD

(Page 4-104, Location A-21 – C-21)



VF-96 BOARD
no mark : REC/PB mode
* : Can not be measured.
(Deleted)
(Change)
(Change)
R903 22k
C908 0.01 B
C909 4.7 6.3V TA A
C906 0.01 B
R902 82k
C931 10K
C935 0.01 B
C934 0.01 B
XHD
SBB
SBR
(B-1)
IC902
RGB DECODER
IC902 CXA1515AQ-T4
SHB SHG SHR FRP
BF
SH B
SH G
SH R
B/BRIGHT
R/BRIGHT
RGB BRIGHT
FRP
VCC2
VCC2
GND2
V COM OUT
SIGC
V COM CONT
R OUT
R CLP
CONT
B GAIN
R GAIN
RGB GAIN
B CLP
B OUT
G CLP
G OUT
C903 0.1 F
C902 0.1 F
C901 0.1 F
R
G
B
BRT
R934 2.2k
C932 0.01 B
R IN
G IN
B IN
BRIGHT
VCC1
VCC1
GND1
GND1
R906 22k
C930 1 16V TA A
C929 0.1 F
R907 33k
C914 0.01 B
R905 330k
C913 3.3 16V
12.1
(B-3)
DOK ON 22
LEVEL 21
TALLY 20
URRENT 19
VCO 18
ON
LKL
TAL
BKLVL
SCB
①
②
③
④
⑩

CCD-TR3300E						CCD-TR3400E					
Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C931	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C931	1-216-833-11	METAL GLAZE	10K	5%	1/16W
IC902	8-752-058-95	IC CXA1515Q-T4				IC902	8-752-080-72	IC CXA1515AQ-T4			
R929	1-216-828-11	METAL CHIP	3.9K	5%	1/16W						
R930	1-216-838-11	METAL CHIP	27K	5%	1/16W						

MC-Service

SECTION 5
REPAIR PARTS LIST

5-1. EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.
- Australian model is abbreviated as AUS.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1-1. CABINET (L) BLOCK ASSEMBLY (Page. 5-1)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
16	X-3945-930-1	LS (UPPER) ASSY (TR3300E:AEP,UK)		16	X-3946-017-1	LS (UPPER) ASSY (TR3400E)	
16	X-3946-295-1	LS (UPPER) ASSY (TR3300E:AUS,E)		16	X-3947-178-1	LS (UPPER) ASSY (TR3100E)	
* 17	A-7072-699-A	FK-67 (XCR) BOARD, COMPLETE (TR3300E:AUS,E)		* 17	A-7073-041-A	FK-67 (X2RP) BOARD, COMPLETE (TR3100E)	
* 17	A-7072-739-A	FK-67 (XP) BOARD, COMPLETE (TR3300E:AEP,UK)		* 17	A-7072-758-A	FK-67 (XCPE) BOARD, COMPLETE (TR3400E)	
19	X-3945-935-1	BOTTOM ASSY, CABINET		19	X-3946-025-1	BOTTOM ASSY, CABINET	
24	8-917-540-90	REMOCON RMT-715//M SET (TR3300E:AUS,E)		——	——————		
25	8-917-541-90	REMOCON RMT-716//M SET (TR3300E:AEP,UK)		25	8-917-593-90	REMOCON RMT-717 SET E	

5-1-2. FRONT PANEL BLOCK ASSEMBLY (Page. 5-2)

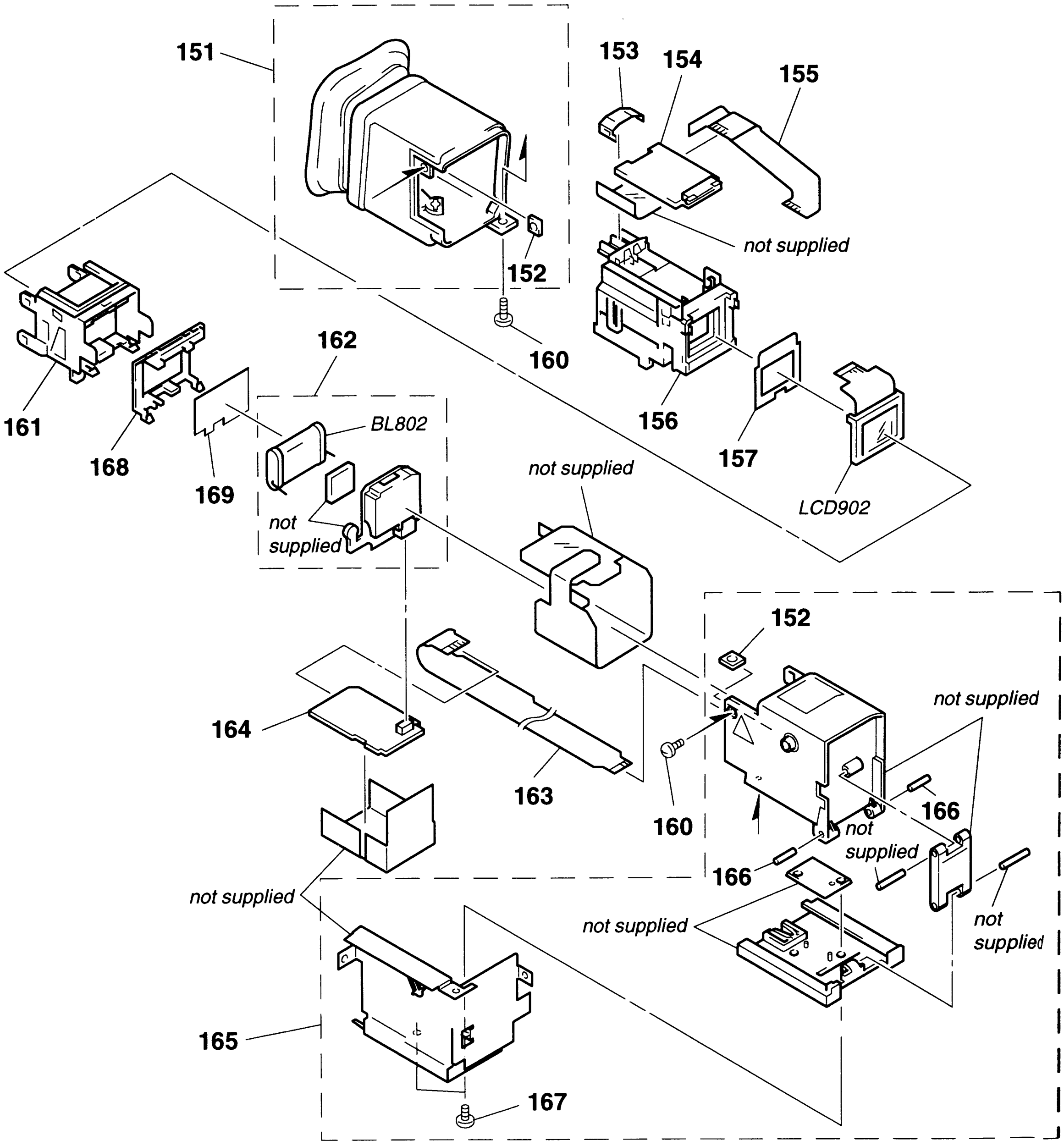
CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3946-426-1	PANEL ASSY, F (TR3300E:AUS,E)		51	X-3947-181-1	PANEL ASSY, F (TR3100E)	
51	X-3946-427-1	PANEL ASSY, F (TR3300E:AEP,UK)		51	X-3947-184-1	PANEL ASSY, F (TR3400E)	

5-1-3. CABINET (R) BLOCK ASSEMBLY (Page. 5-3)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-3946-263-1	CABINET (R) ASSY (TR3300E:AUS,E)		101	X-3947-180-1	CABINET (R) ASSY (TR3100E)	
101	X-3946-293-1	CABINET (R) ASSY (TR3300E:AEP,UK)		101	X-3947-224-1	CABINET (R) ASSY (TR3400E)	

(Page 5-4)

5-1-4. EVF BLOCK ASSEMBLY (COLOR) (TR3400E)

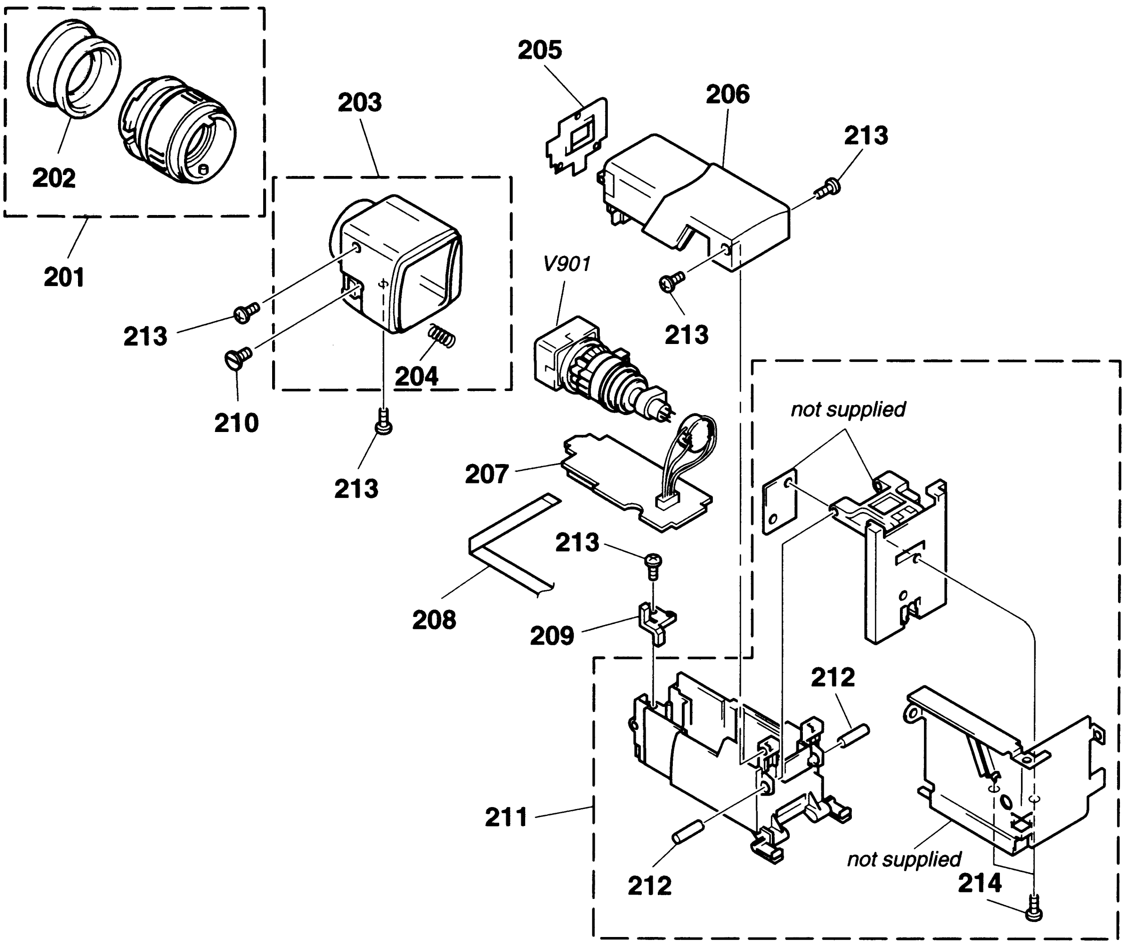

151
153
154
155
not supplied
152
160
162
BL802
161
168
169
not
supplied
156
157
not supplied
LCD902
152
not supplied
164
163
160
166
not
supplied
166
not supplied
not supplied
not
supplied
165
167

Ref. No.	Part No.	Description	Remark
151	X-3946-298-1	CABINET ASSY, EVF(REAR)	
152	3-718-233-01	NUT, PLATE	
* 153	3-969-176-01	COVER, SENSOR	
* 154	A-7073-044-A	VF-96 (X2CRPE) BOARD, COMPLETE	
155	1-660-296-11	FP-420 FLEXIBLE BOARD	
156	X-3946-253-1	LENS ASSY, VF	
157	3-965-056-01	MASK, LCD	
160	3-968-729-01	SCREW (M2), LOCK ACE, P2	
161	X-3946-254-1	HOLDER ASSY, PRISM	
* 162	A-7072-757-A	LB-45 (XCPE) BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
163	1-660-285-11	FP-386 FLEXIBLE BOARD	
* 164	A-7072-755-A	VF-95 (XCPE) BOARD, COMPLETE	
165	X-3947-183-1	CABINET ASSY, EVF (FRONT)	
166	3-963-817-01	SHAFT (1), TILT	
167	3-719-381-01	SCREW (M2X4)	
168	3-970-381-01	HOLDER, BL	
169	3-970-385-01	PLATE (6460), CONDENSE	
⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH)	
LCD902	8-753-016-07	LCX009AK-4	

(Page 5-5)

5-1-5. EVF BLOCK ASSEMBLY (WHITE/BLACK) (TR3100E)


205
206
213
203
202
201
V901
213
213
204
210
213
207
not supplied
213
208
209
212
211
212
not supplied
214

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
201	X-3944-966-1	FINDER ASSY	
202	3-963-391-01	EYE CUP	
203	X-3946-300-1	CABINET ASSY (W/B), EVF REAR	
204	3-302-492-00	SPRING, COMPRESSION	
205	3-970-774-01	COVER, CRT	
* 206	3-970-776-31	CABINET (UPPER)(W/B), VF	
* 207	A-7066-841-A	VF-104 (XP) BOARD, COMPLETE	
208	1-661-547-11	FP-490 FLEXIBLE BOARD	
209	3-970-775-01	GUIDE (W/B), TALLY LIGHT	
210	3-703-454-41	SCREW (1.7X3), TAPPING	
211	X-3947-179-1	CABINET ASSY (W/B), EVF LOWER	
212	3-963-817-01	SHAFT (1), TILT	
213	3-948-339-01	SCREW, TAPPING	
214	3-719-381-01	SCREW (M2X4)	
⚠V901	1-452-673-31	CRT ASSY	

5-1-6. MAIN BOARDS ASSEMBLY (Page. 5-6)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 255	A-7072-559-A	EZ-21 (HP) BOARD, COMPLETE		——	————		
* 258	A-7072-700-A	MM-32 (XCR) BOARD, COMPLETE		* 258	A-7073-040-A	MM-32 (X2R) BOARD, COMPLETE	
* 260	A-7092-986-A	VC-177 (XCRP) BOARD, COMPLETE (TR3300E:AEP, UK)		* 260	A-7093-179-A	VC-177 (X2RP) BOARD, COMPLETE (TR3100E)	
* 260	A-7092-987-A	VC-177 (XCRPE) BOARD, COMPLETE (TR3300E:AUS, E)		* 260	A-7093-181-A	VC-177 (X2CRPE) BOARD, COMPLETE (TR3400E)	
* 264	A-7092-933-A	HI-40 (XCPE) BOARD, COMPLETE		* 264	A-7093-178-A	HI-40 (X2RP) BOARD, COMPLETE (TR3100E)	
——	————			* 264	A-7093-180-A	HI-40 (X2CRPE) BOARD, COMPLETE (TR3400E)	
* 265	A-7092-871-A	DD-87 (XCR) BOARD, COMPLETE		* 265	A-7092-871-A	DD-87 (XCR) BOARD, COMPLETE (TR3400E)	
——	————			* 265	A-7092-916-A	DD-87 (XP) BOARD, COMPLETE (TR3100E)	
266	1-660-298-11	FP-401 FLEXIBLE BOARD		——	————		
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P		CN901	1-774-867-21	CONNECTOR, EXTERNAL (HOT SHOE) 8P	

5-1-7. BATTERY PANEL BLOCK ASSEMBLY AND CCD BLOCK ASSEMBLY (Page. 5-7)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 313	A-7072-693-A	AV-36 (XCR) BOARD, COMPLETE (TR3300E,AUS,E)		* 313	A-7072-693-A	AV-36 (XCR) BOARD, COMPLETE (TR3400E)	
* 313	A-7072-740-A	AV-36 (XP) BOARD, COMPLETE (TR3300E,AEP,UK)		* 313	A-7072-740-A	AV-36 (XP) BOARD, COMPLETE (TR3100E)	
J901	1-694-076-21	TERMINAL BOARD, BATTERY (TR3300E)		J901	1-694-076-11	TERMINAL BOARD, BATTERY	

MISCELLANEOUS (Page. 5-35)

CCD-TR3300E				CCD-TR3100E/TR3400E			
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
155	1-660-296-11	FP-420 FLEXIBLE BOARD		155	1-660-296-11	FP-420 FLEXIBLE BOARD (TR3400E)	
163	1-660-285-11	FP-386 FLEXIBLE BOARD		163	1-660-285-11	FP-386 FLEXIBLE BOARD (TR3400E)	
——	————			208	1-661-547-11	FP-490 FLEXIBLE BOARD (TR3100E)	
266	1-660-298-11	FP-401 FLEXIBLE BOARD		——	————		
⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH)		⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH) (TR3400E)	
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P		CN901	1-774-867-21	CONNECTOR, EXTERNAL (HOT SHOE) 8P	
J901	1-694-076-21	TERMINAL BOARD, BATTERY (TR3300E)		J901	1-694-076-11	TERMINAL BOARD, BATTERY	
LCD902	8-753-016-07	LCX009AK-4		LCD902	8-753-016-07	LCX009AK-J (TR3400E)	
——	————			⚠V901	1-452-673-31	CRT ASSY (TR3100E)	

ACCESSORIES & PACKING MATERIALS (Page. 5-36)

CCD-TR3300E

Ref. No.	Part No.	Description	Remark
⚠	1-764-622-11	ADAPTOR, CONVERSION, 2P (TR3300E:AEP,UK)	
	3-856-204-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (TR3300E:AEP, UK)	
	3-856-204-41	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (TR3300E:AEP)	
	3-856-204-51	MANUAL, INSTRUCTION (FRENCH, DUTCH) (TR3300E:AEP)	
	3-856-204-61	MANUAL, INSTRUCTION (SWEDISH, PORTUGUESE) (TR3300E:AEP)	
	3-856-548-11	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TR3300E:AUS, E)	
	3-856-548-21	MANUAL, INSTRUCTION (FRENCH, GERMAN) (TR3300E:E)	
	3-856-548-31	MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TR3300E:E)	
	3-856-548-41	MANUAL, INSTRUCTION (CHINESE) (TR3300E:E)	
*	3-971-418-01	INDIVIDUAL CARTON	
—	—		
	8-917-540-90	REMOCON RMT-715//M SET (TR3300E:AUS,E)	
	8-917-541-90	REMOCON RMT-716//M SET (TR3300E:AEP, UK)	
⚠	A-7009-240-A	AC-V315 AC POWER ADAPTOR (TR3300E:AEP)	
⚠	A-7009-241-A	AC-V315 AC POWER ADAPTOR (TR3300E:UK)	
⚠	A-7009-242-A	AC-V315 AC POWER ADAPTOR (TR3300E:E)	
⚠	A-7009-243-A	AC-V315 AC POWER ADAPTOR (TR3300E:E, AUS)	
	A-7092-699-A	CASE (L) ASSY, BATTERY	
—	—		
—	—		
**	HSA-515	HANDYCAM STATION	
**	HSA-EC1	EDIT STATION	

CCD-TR3100E/TR3400E

Ref. No.	Part No.	Description	Remark
—	—		
	3-859-084-11	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TR3100E)	
	3-859-084-41	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (TR3100E:AEP)	
	3-859-084-51	MANUAL, INSTRUCTION (FRENCH, DUTCH) (TR3100E:AEP)	
	3-859-084-61	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TR3100E:AEP)	
	3-859-343-11	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TR3400E)	
	3-859-343-21	MANUAL, INSTRUCTION (FRENCH, GERMAN) (TR3400E:E)	
	3-859-343-31	MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TR3400E:E)	
	3-859-343-41	MANUAL, INSTRUCTION (CHINESE) (TR3400E:E)	
*	3-970-771-81	INDIVIDUAL CARTON (TR3100E)	
*	3-975-669-01	INDIVIDUAL CARTON (TR3400E)	
—	—		
	8-917-593-90	REMOCON RMT-717 SET E	
⚠	A-7009-816-A	AC-V316 AC POWER ADAPTOR (TR3100E:AEP)	
⚠	A-7009-235-A	AC-V316 AC POWER ADAPTOR (TR3100E:UK)	
⚠	A-7009-234-A	AC-V316 AC POWER ADAPTOR (TR3400E:E)	
⚠	A-7009-237-A	AC-V316 AC POWER ADAPTOR (TR3400E:AUS)	
	A-7092-699-A	CASE (L) ASSY, BATTERY (TR3100E)	
⚠	1-569-008-11	ADAPTOR, CONVERSION 2P (TR3400E:E)	
	1-573-291-11	CONNECTOR, CONVERSION (TR3100E)	
—	—		
—	—		

SECTION 6
ADJUSTMENTS

6-1. CAMERA SECTION ADJUSTMENTS

1-1-5. Page F Address

(Page 6-7)

Address	Adjustment Data Initial Value		
	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
27	(40) [41]	40	03

(Change)

1-1-6. Page E Address

(Page 6-10)

Address	Adjustment Data Initial Value		
	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
1C	EE	10	10
1D	ED	00	00
1E	FE	EC	EC
50	F8	FA	FA

(Change)

1-2. CAMERA SECTION ADJUSTMENTS

2. Modification of F Page Data

(Page 6-13)

Address	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
27	(40) [41]	40	03

(Change)

3. Modification of E Page Data

(Page 6-14)

Address	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
1C	EE	10	10
1D	ED	00	00
1E	FE	EC	EC
50	F8	FA	FA

(Change)

1-3. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

2. EVR Initial Data Input

(Page 6-24)

Address	CCD-TR3300E	CCD-TR3400E
46	94	D4
47	48	73
4E	78	90
50	50	60

(Change)

6-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

3-1-10. Page D Address

(Add)

(Page 6-45)

Note 4: Addresses: 40 to 63 are not used for CCD-TR3100E.

Address	Adjustment Data Initial Value		
	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
13	AE	01	AE
18	00	00	01
1C	19	99	99
20	00	00	02
21	(42) [84]	42	10
22	33	31	34
27	EA	F9	F9
2E	03	00	00
36	C9	C8	C8
3C	08	05	05
46	94		D4
47	48		73
4E	78		90
50	50		60

(Change)

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

3. Modification of D Page Data

(Page 6-46)

Address	CCD-TR3300E	CCD-TR3100E	CCD-TR3400E
13	AE	01	AE
18	00	00	01
1C	19	99	99
20	00	00	02
21	(42) [84]	42	10
22	33	31	34
27	EA	F9	F9
2E	03	00	00
36	C9	C8	C8
3C	08	05	05

(Change)

CCD-TR2200E/TR2300E/TR3300E
RMT-715/716

SERVICE MANUAL

AEP Model
UK Model
CCD-TR2200E/TR3300E
E Model
CCD-TR2300E/TR3300E
Australian Model
CCD-TR3300E
Hong Kong Model
Tourist Model
CCD-TR2300E

Photo : CCD-TR3300E
: RMT-716

video Hi8
Handycam

B MECHANISM

For MECHANISM ADJUSTMENTS, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL VII**" (9-973-801-11).**

SPECIFICATIONS

Video camera recorder

System

Video recording system
Two rotary heads, Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8mm video format cassette (Hi8 or standard 8 mm)
Recording/Playback time
SP mode: 2 hours (E5/P5-120) (AEP,UK)
SP mode: 1 hours 30 minutes (E5/P5-90)(AUS,E,HK,JE)
LP mode: 4 hours (E5/P5-120) (AEP,UK)
LP mode: 3 hours (E5/P5-90) (AUS,E,HK,JE)
Fastforward/rewind time
Approx. 4 min. (E5/P5-120)
Image device
CCD (Charge Coupled Device)
Viewfinder
CCD-TR2300E/TR3300E:
Electronic viewfinder (colour)
CCD-TR2200E:
Electronic viewfinder (Monochrome)
Lens
Combined power zoom lens
Filter diameter 52 mm (2 $^{1}/_{8}$ in.)
21 x (Optical)
42 x (Digital): CCD-TR2200E/ TR3300E (AEP,UK)
84 x (Digital): CCD-TR2300E/ TR3300E (AUS,E,HK,JE)
Focal distance
3.9 – 81.9 mm ($^{5}/_{32}$ – 3 $^{1}/_{4}$ in.)
37 – 777 mm (1 $^{1}/_{2}$ – 30 $^{5}/_{8}$ in.) when converted to a 35 mm still camera
Colour temperature
Auto,
One push white balance ⛅,
Indoor 💡 3,200 K,
Outdoor ☀ 5,800 K
Minimum illumination
2 lux at F1.6
0.1 lux at F1.6 when using the Slow shutter function (CCD-TR3300E only)
Illumination range
2 lux to 100,000 lux
Recommended illumination
More than 100 lux

Input and output connectors

S video input/output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced
Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced
Video input/output
Phono jack, 1 Vp-p, 75 ohms, unbalanced
Audio input/output
Phono jacks (2: stereo L and R)
Input 327 mV, input impedance more than 47 kilohms
Output 327 mV, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT
Special minijack, DC 5 V
Headphone jack
Stereo minijack
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kilohms (ø 3.5 mm)
Stereo type

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption
CCD-TR3300E:AEP,UK
4.8 W during camera recording
CCD-TR3300E:AUS,E,HK,JE
4.6 W during camera recording
CCD-TR2200E/2300E:
4.5 W during camera recording
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions (Approx.)
CCD-TR2300E/TR3300E:
110 x 110 x 215 mm
(4 $^{3}/_{8}$ x 4 $^{3}/_{8}$ x 8 $^{1}/_{2}$ in.) (w/h/d)
CCD-TR2200E:
110 x 110 x 222 mm
(4 $^{3}/_{8}$ x 4 $^{3}/_{8}$ x 8 $^{7}/_{8}$ in.) (w/h/d)
Mass (Approx.)
CCD-TR2300E/TR3300E:
930 g (2 lb) excluding the battery pack, lithium battery, cassette, lens cap and shoulder strap
1.1 kg (2 lb 6 oz) including the battery pack NP-F530, lithium battery CR 2025, cassette E5/P5-120, lens cap and shoulder strap
CCD-TR2200E:
920 g (2 lb) excluding the battery pack, lithium battery, cassette, lens cap and shoulder strap
1.1 kg (2 lb 6 oz) including the battery pack NP-F530, lithium battery CR 2025, cassette E5/P5-120, lens cap and shoulder strap
Microphone
Stereo type
Supplied accessories
See page 3.

AC power adaptor

Power requirements
110 – 240 V AC, 50/60 Hz
Power consumption
25 W
Output voltage
DC OUT: 8.4 V, 1.9 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode
Application
Sony battery packs NP-F530, NP-F730 lithium ion type

– Continued on next page –

Hi8 VIDEO CAMERA RECODER
SONY®

MICROFILM

Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions (Approx.)
81 x 45 x 163 mm (3 $^1/_4$ x 1 $^{13}/_{16}$ x 6 $^1/_2$ in.) (w/h/d) including projecting parts and controls
Mass (Approx.)
AC-V315: 480 g (1 lb 1 oz)
AC-V316: 560 g (1 lb 3 oz)

Handycam Station

(for CCD-TR3300E only)
S video/Video/Audio input/output
Same specifications as video camera recorder
RFU DC OUT
Same specifications as video camera recorder
LANC control jack
Stereo mini-mini jack (ø 2.5 mm)
Handycam Station Terminal
20 pin special connector
Operating temperature/Storage temperature
Same specifications as video camera recorder
Dimensions(Approx.)
153 x 45 x 163 mm(w/h/d)
Mass (Approx.)
340 g

Design and specifications are subject to change without notice.

Table for difference of functions

		TR2200E	TR2300E	TR3300E		
		AEP, UK	E, HK, JE	AEP, UK	E, AUS, HK, JE	
Classification		TYPE A	TYPE B	TYPE C	TYPE D	
Remote Commander		RMT-716	RMT-715	RMT-716	RMT-715	
Viewfinder		B/W EVF	Color EVF			Note 1
Digital Memory				○	○	Note 2
Easy Connector		○		○	○	Note 3
VTR REC (Line in)			○		○	
Lens	Optical	21 ×	21 ×	21 ×	21 ×	
	Digital	42 ×	84 ×	42 ×	84 ×	

Note 1: B/W EVF (with VF-104 board)
Color EVF (with VF-95, VF-96, LB-45 board and FP-420 Flexible board)
2: ○ (with MM-32 board)
3: ○ (with EZ-21 board, and IC571, 600 of VC-177 board)

- Abbreviation

AUS	: Australian model
HK	: Hong Kong model
JE	: Tourist model

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

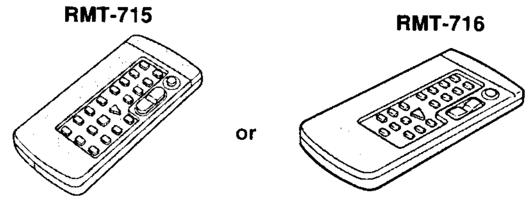
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

Supplied accessories

1



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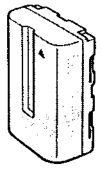

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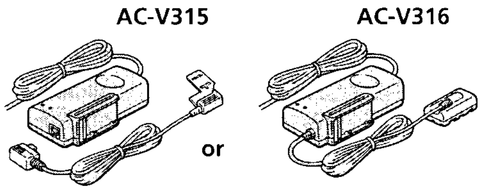
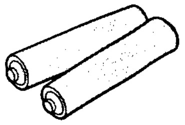


4

CR2025
SONY
+

5



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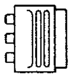

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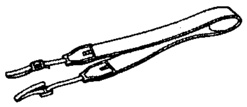

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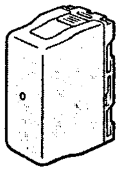

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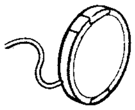

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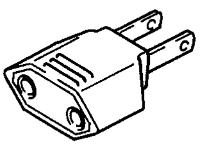

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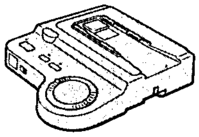


1 **Wireless Remote Commander** (1)
RMT-715: CCD-TR2300E/TR3300E: AUS, E
RMT-716: CCD-TR2200E/TR3300E: AEP, UK

2 **NP-F530 Battery pack** (1)

3 **AC power adaptor** (1)
AC-V315: CCD-TR2200E/TR3300E
AC-V316: CCD-TR2300E

4 **CR2025 Lithium Battery** (1)
The lithium battery is already installed in your camcorder.

5 **R6 (size AA) battery for Remote Commander** (2)

6 **A/V connecting cable** (1)

7 **21 pin adaptor** (1)

8 **Shoulder strap** (1)

9 **Battery case** (1)

10 **Lens cap** (1)
This lens cap is already set on your camcorder.

11 **2 pin conversion adaptor** (1)
CCD-TR2200E/TR2300E/TR3300E: AEP, UK

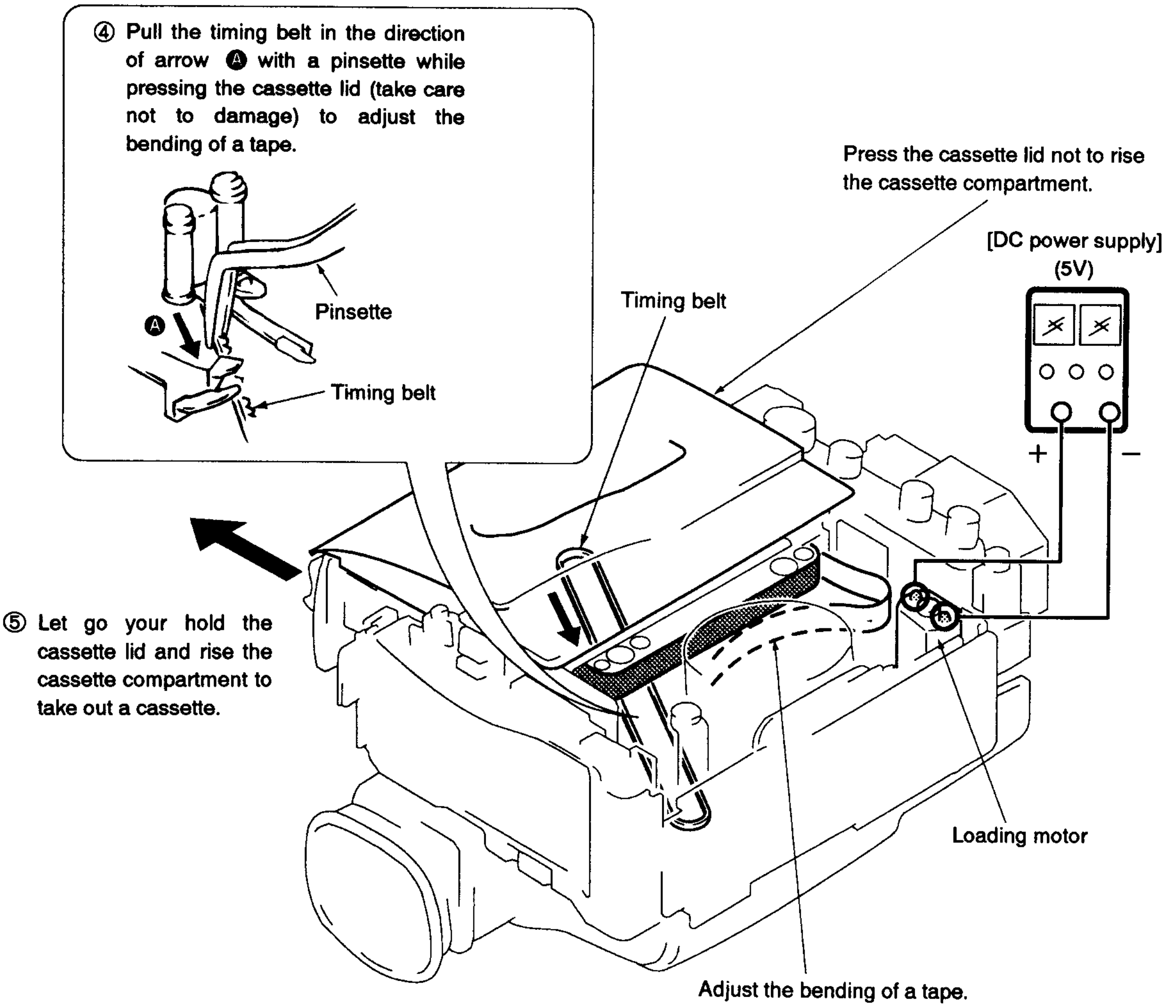
12 **HSA-V515 Handycam Station** (1)
CCD-TR3300E: AUS, E

Note.
Australian model is abbreviated as AUS.
Hong Kong model is abbreviated as HK.
Tourist model is abbreviated as JE.

SERVICE NOTE

TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT).

① Refer to 2-2. to remove the Front panel assembly.
② Refer to 2-3. to remove the Cabient (L) assembly.
③ Add +5V from the DC power supply and unload with a pressing the cassette lid.



④ Pull the timing belt in the direction of arrow Ⓐ with a pinsette while pressing the cassette lid (take care not to damage) to adjust the bending of a tape.

⑤ Let go your hold the cassette lid and rise the cassette compartment to take out a cassette.

Press the cassette lid not to rise the cassette compartment.

Adjust the bending of a tape.

Ⓐ
Pinsette
Timing belt
Timing belt
[DC power supply]
(5V)
+
−
Loading motor

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There is the color reproduction standard frame at the back of the book.

Before you begin

Using this manual

The instructions in this manual are for the two models listed below. Before you start reading this manual and operating the unit, check your model number by looking at the bottom of your camcorder. The CCD-TR3300E is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TR3300E only." As you read through this manual, buttons and settings on the camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.
As indicated with ♪ in the illustrations, you can hear the beep sound to confirm your operation.

Type of differences

Model number	CCD-TR2200E	CCD-TR3300E
Viewfinder	B/W	Colour
Slow Shutter	—	•
Overlap/Wipe	—	•
Digital Effect	—	3 modes

Note on TV colour systems

TV colour systems differ from country to country. To view your recordings on a TV, you need a PAL system-based TV.

Precaution on copyright

Television programmes, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Antes de comenzar

Uso de este manual

Las instrucciones de este manual se aplican a los dos modelos enumerados a continuación. Antes de comenzar la lectura de este manual y de emplear la unidad, compruebe su número de modelo situado en la parte inferior de la videocámara. El modelo que aparece en las ilustraciones es el CCD-TR3300E. El nombre del modelo se especifica en las ilustraciones y cualquier diferencia de funcionamiento aparece claramente indicada en el texto, por ejemplo, "sólo CCD-TR3300E". Como comprobará al leer el manual, los botones y ajustes de la videocámara aparecen en mayúsculas.
Ejemplo: Ajuste el interruptor POWER en CAMERA.
Como se indica con el símbolo ♪ en las ilustraciones, la unidad emite un pitido para confirmar operaciones.

Tipo de diferencias

Número de modelo	CCD-TR2200E	CCD-TR3300E
Visor electrónico	B/W	Color
Obturación a baja velocidad	—	•
Superposición/ Desplazamiento de imágenes fijas	—	•
Efecto digital	—	3 modos

Nota sobre sistemas de televisión en color

Los sistemas de televisión en color varían en función del país. Para visualizar grabaciones en un televisor, éste debe estar basado en el sistema PAL.

Precaución sobre los derechos de autor (copyright)

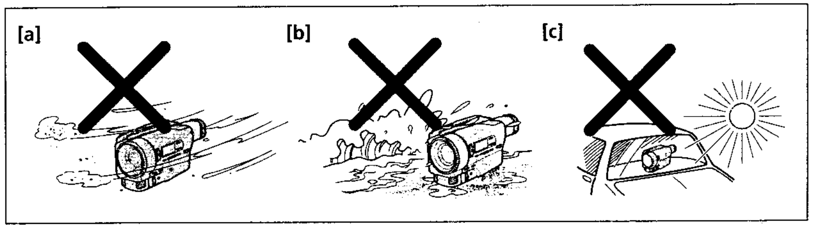
Los programas de televisión, películas, cintas de vídeo y otros materiales pueden estar protegidos por el copyright. La grabación no autorizada de tales materiales puede ir en contra de lo dispuesto en las leyes de copyright.

Precautions on camcorder care

- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [a].**
- **Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [b].**
- **Never leave the camcorder exposed to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight [c].**

Precauciones sobre el cuidado de la videocámara

- **Evite que se introduzca arena en la videocámara. Si la utiliza en una playa de arena o en un lugar polvoriento, protéjala de la arena y del polvo; estos elementos pueden provocar fallos de funcionamiento que a veces no sea posible reparar [a].**
- **Evite que la videocámara se moje. Manténgala alejada de la lluvia y del agua marina; si la unidad se moja pueden producirse fallos de funcionamiento que a veces no sea posible reparar [b].**
- **No exponga la unidad a temperaturas superiores a 60°C (140°F), como en un automóvil aparcado al sol o bajo la luz solar directa [c].**



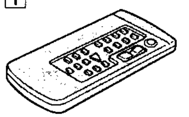
Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

El contenido de la grabación no podrá corregirse si no es posible realizar la grabación o la reproducción debido a algún fallo de funcionamiento de la videocámara, cinta de vídeo, etc.

This section is extracted from instruction manual of CCD-TR2200E/TR3300E.

Checking supplied accessories

Check that the following accessories are supplied with your camcorder.

1


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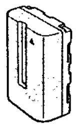

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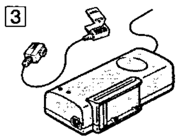

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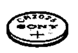

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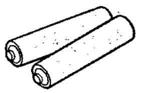

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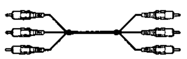

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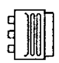

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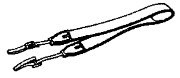

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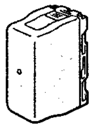

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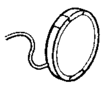


1 **Wireless Remote Commander** (1) (p.120)

2 **NP-F530 Battery pack** (1) (p.8)

3 **AC power adaptor** (1) (p.8, 27)

4 **CR2025 Lithium Battery** (1) (p.90)
The lithium battery is already installed in your camcorder.

5 **R6 (size AA) battery for Remote Commander** (2) (p.121)

6 **A/V connecting cable** (1) (p.21, 22)

7 **21 pin adaptor** (1) (p.22)

8 **Shoulder strap** (1) (p.122)

9 **Battery case** (1) (p.29)

10 **Lens cap** (1) (p.13, 77)
This lens cap is already set on your camcorder.

Comprobación de los accesorios suministrados

Compruebe que los siguientes accesorios están incluidos junto con la videocámara:

1 **Mando a distancia inalámbrico** (1) (pág. 120)

2 **Paquete de batería NP-F530** (1) (pág. 8)

3 **Adaptador de alimentación de CA** (1) (pág. 8, 27)

4 **Pila de litio CR2025** (1) (pág. 90)
La pila de litio ya se encuentra instalada en la videocámara.

5 **Pila R6 (tamaño AA) para el mando a distancia** (2) (pág. 121)

6 **Cable de conexión de A/V** (1) (pág. 21, 22)

7 **Adaptador de 21 pines** (1) (pág. 22)

8 **Asa de hombro** (1) (pág. 122)

9 **Estuche de pilas** (1) (pág. 29)

10 **Tapa del objetivo** (1) (pág. 13, 77)
Esta tapa ya se encuentra fijada a la videocámara.

Getting started

Charging and installing the battery pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC power adaptor.

This camcorder operates with the "InfoLITHIUM" battery labeled ⓘ *InfoLITHIUM* such as NP-F530/F730. If you use any other battery to operate your camcorder, the camcorder may not operate or the battery life may be shortened.

"InfoLITHIUM" is a trademark of Sony Corporation.

Charging the battery pack

Charge the battery pack on a flat surface without vibration.

(1) Connect the mains lead to mains.
(2) Align the surface of the battery pack indicated by the ▶ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack in the direction of the arrow. The CHARGE lamp (orange) lights up. Charging begins.

When charging is completed, the CHARGE lamp goes out. If the battery pack is used right after the CHARGE lamp goes out, it will last for a normal period (**normal charge**). If allowed to charge for an additional hour or so, the battery pack will last for a longer period (**full charge**). Unplug the unit from the mains, then remove the battery pack and install it into the camcorder. You can also use the battery pack before it is completely charged.

Procedimientos iniciales

Carga e instalación del paquete de batería

Antes de emplear la videocámara, es necesario cargar e instalar el paquete de batería. Para cargarlo, utilice el adaptador de alimentación de CA suministrado.

Esta videocámara funciona con pilas "InfoLITHIUM" que presenten la etiqueta ⓘ *InfoLITHIUM*, como la NP-F530/F730. Si emplea la videocámara con otro tipo de pila, es posible que dicha videocámara no funcione o que la duración de la pila se reduzca.

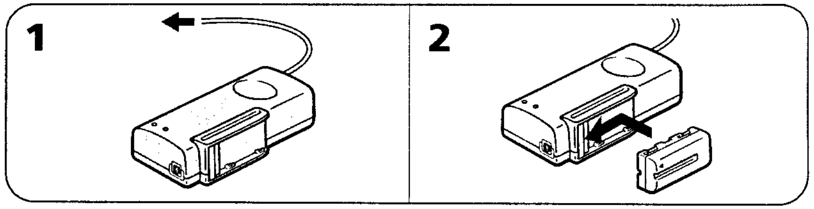
"InfoLITHIUM" es una marca comercial de Sony Corporation.

Carga del paquete de batería

Realice la carga del paquete de batería sobre una superficie plana sin vibraciones.

(1) Conecte el cable de alimentación a la toma de corriente.
(2) Alinee la superficie, indicada mediante la marca ▶, del paquete de batería con el extremo del terminal del obturador del adaptador de alimentación de CA. A continuación, encaje y deslice el paquete de batería en la dirección de la flecha. El indicador CHARGE (naranja) se ilumina y comienza la carga.

Una vez finalizada la carga, el indicador CHARGE se apaga. Si utiliza el paquete de batería inmediatamente después de apagarse dicho indicador, su duración será la normal (**carga normal**). Si lo carga durante aproximadamente una hora más, su duración será mayor (**carga total**). Desenchufe la unidad de la toma de corriente, extraiga el paquete de batería e instálelo en la videocámara. También es posible utilizar el paquete de batería antes de que esté completamente cargado.



Charging time

Battery pack	Charging time* (min.)
NP-F530 (supplied)	170 (110)
NP-F730	250 (190)

* Approximate minutes to charge an empty battery pack using the supplied AC power adaptor (full charge). (Lower temperatures require a longer charging time.)
The time required for a normal charge is indicated in parentheses.

Battery life

— CCD-TR3300E

Battery pack	Continuous recording time[1] (min.)	Typical recording time[2] (min.)
NP-F530 (supplied)	100 (90)	60 (55)
NP-F730	225 (205)	135 (125)

— CCD-TR2200E

Battery pack	Continuous recording time[1] (min.)	Typical recording time[2] (min.)
NP-F530 (supplied)	110 (95)	65 (55)
NP-F730	245 (220)	145 (130)

The available time for a fully charged battery is indicated outside parentheses. The available time for normal charged battery is indicated in parentheses.
Battery life will be shorter if you use the camcorder in a cold environment.

1) Approximate continuous recording time indoors.
2) Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Tiempo de carga

Paquete de batería	Tiempo de carga* (min.)
NP-F530 (suministrado)	170 (110)
NP-F730	250 (190)

* Minutos aproximados para cargar un paquete de batería agotado con el adaptador de alimentación de CA suministrado (carga total). (A bajas temperaturas, el tiempo de carga necesario es mayor.)
El tiempo necesario para obtener una carga normal se indica entre paréntesis.

Duración del paquete de batería

— CCD-TR3300E

Paquete de batería	Tiempo de grabación continua[1] (min.)	Tiempo de grabación normal[2] (min.)
NP-F530 (suministrado)	100 (90)	60 (55)
NP-F730	225 (205)	135 (125)

— CCD-TR2200E

Paquete de batería	Tiempo de grabación continua[1] (min.)	Tiempo de grabación normal[2] (min.)
NP-F530 (suministrado)	110 (95)	65 (55)
NP-F730	245 (220)	145 (130)

El tiempo disponible de un paquete de batería completamente cargado se indica a la izquierda, mientras que el correspondiente a un paquete con carga normal se indica entre paréntesis.
La duración del paquete de batería será inferior si utiliza la videocámara en lugares fríos.

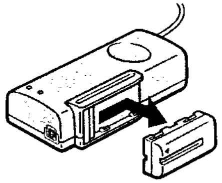
1) Tiempo aproximado de grabación continua en interiores.
2) Minutos aproximados al grabar con repetición de las operaciones de inicio/parada de grabación, zoom y activación y desactivación de la alimentación. Es posible que la duración real del paquete de batería sea inferior.

Charging and installing the battery pack

Note on remaining battery time indication during recording
When you use the InfoLITHIUM battery pack NP-F530 or NP-F730, remaining battery time is displayed in the viewfinder. However, the indication may not be displayed properly, depending on using conditions and circumstances.

To remove the battery pack

Slide the battery pack in the direction of the arrow.



Notes on charging the battery pack

- The CHARGE lamp will remain lit for a while even if the battery pack is removed and the mains lead is unplugged after charging the battery pack. This is normal.
- If the CHARGE lamp does not light, disconnect the mains lead. After about one minute, reconnect the mains lead again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.
- When a fully charged battery pack is installed, the CHARGE lamp will light once, then go out.

Carga e instalación del paquete de batería

Nota sobre la indicación de tiempo de batería restante durante la grabación
Si utiliza el paquete de batería NP-F530 o NP-F730 InfoLITHIUM, el tiempo de batería restante aparece en el visor electrónico. No obstante, la indicación puede no mostrarse correctamente en función de las condiciones y circunstancias de uso.

Extracción del paquete de batería

Deslice el paquete de batería en la dirección de la flecha.

Notas sobre la carga del paquete de batería

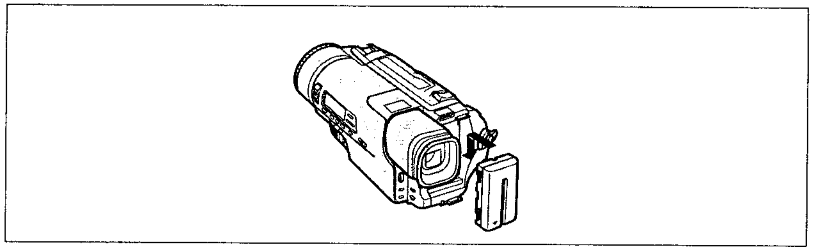
- El indicador CHARGE permanecerá iluminado durante unos momentos aunque haya extraído el paquete de batería y haya desenchufado el cable de alimentación después de cargar dicho paquete. Esto es normal.
- Si el indicador CHARGE no se ilumina, desconecte el cable de alimentación. Transcurrido un minuto aproximadamente, vuelva a conectarlo.
- No es posible utilizar la videocámara con el adaptador de alimentación de CA mientras se carga el paquete de batería.
- Al instalar un paquete de batería totalmente cargado, el indicador CHARGE se ilumina una vez y, a continuación, se apaga.

Installing the battery pack

Align the grooves of the battery pack with the receptacles of the camcorder and slide the battery pack down until it catches on the battery release lever and clicks.

Instalación del paquete de batería

Alinee las ranuras del paquete de batería con los receptáculos de la videocámara y deslice dicho paquete hacia abajo hasta que quede retenido en la palanca de liberación del paquete y se oiga un chasquido.

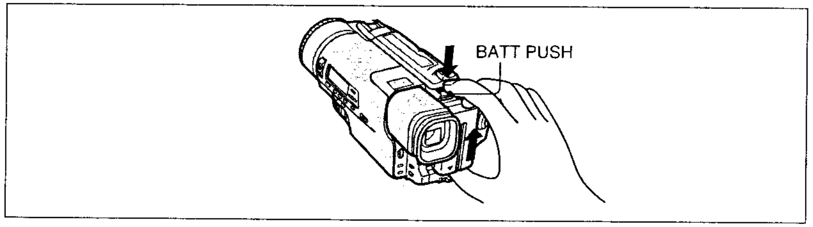


To remove the battery pack

While pressing BATT (battery) PUSH, slide the battery pack in the direction of the arrow.

Para extraer el paquete de batería

Deslícelo en la dirección de la flecha mientras pulsa BATT (batería) PUSH.



Inserting a cassette

Inserción de videocassettes

Make sure that the power source is installed. When you want to record in the Hi8 system, use Hi8 video cassette **Hi8**.

(1) While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow. The cassette compartment automatically lifts up and opens.

(2) Insert a cassette with the window facing out.

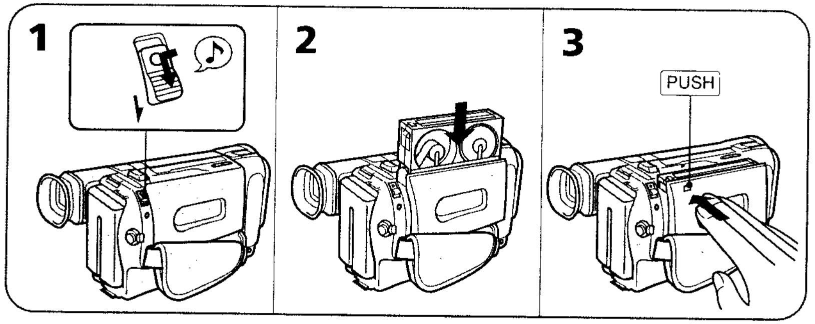
(3) Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.

Asegúrese de que la fuente de alimentación está instalada. Si desea grabar con el sistema Hi8, emplee videocassettes **Hi8**.

(1) Deslice el interruptor EJECT en la dirección de la flecha mientras pulsa el botón azul pequeño del mismo. El compartimiento de videocassettes se eleva y se abre automáticamente.

(2) Inserte un videocassette con la ventana orientada hacia fuera.

(3) Cierre el compartimiento de videocassettes presionando la marca "PUSH" del mismo. Este descenderá automáticamente.



To eject the cassette

While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow.

Para expulsar el videocassette

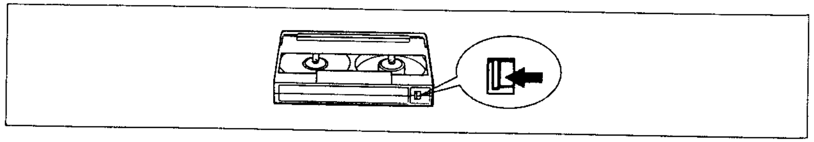
Deslice el interruptor EJECT en la dirección de la flecha mientras pulsa el botón azul pequeño del mismo.

To prevent accidental erasure

Slide the tab on the cassette to expose the red mark. If you insert the cassette with the red mark exposed and close the cassette compartment, the beeps sound for a while. If you try to record with the red mark exposed, the ⊡ and ⏏ indicators flash in the viewfinder, and you cannot record. To re-record on this tape, slide the tab back out covering the red mark.

Para evitar borrados accidentales

Deslice la lengüeta del videocassette de forma que la marca roja quede al descubierto. Si inserta el videocassette con la marca roja al descubierto y cierra el compartimiento de videocassettes, la unidad emitirá pitidos durante unos instantes. Si intenta grabar con la marca roja al descubierto, los indicadores ⊡ y ⏏ parpadearán en el visor electrónico y no será posible grabar. Para volver a grabar en esta cinta, deslice la lengüeta para cubrir la marca roja.



Camera recording

Grabación con la cámara

Make sure that the power source is installed and a cassette is inserted. Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.

When you use the camcorder for the first time, power on it and reset the date and time to your time before you start recording. (p.92) To save battery power, the picture in the viewfinder appears only when you bring your face close to the viewfinder with STANDBY up (**Finder power save**). (CCD-TR3300E only)

(1) Remove the lens cap.

(2) While pressing the small green button on the POWER switch, set it to CAMERA.

(3) Turn STANDBY up.

(4) Press START/STOP. The camcorder starts recording. The "REC" indicator appears and the red lamp lights up in the viewfinder. The camera recording/battery lamps located on the front light up.

Asegúrese de que ha instalado la fuente de alimentación y de que ha insertado un videocassette. Antes de grabar acontecimientos únicos, es posible que desee realizar una grabación de prueba para cerciorarse de que la videocámara funciona correctamente.

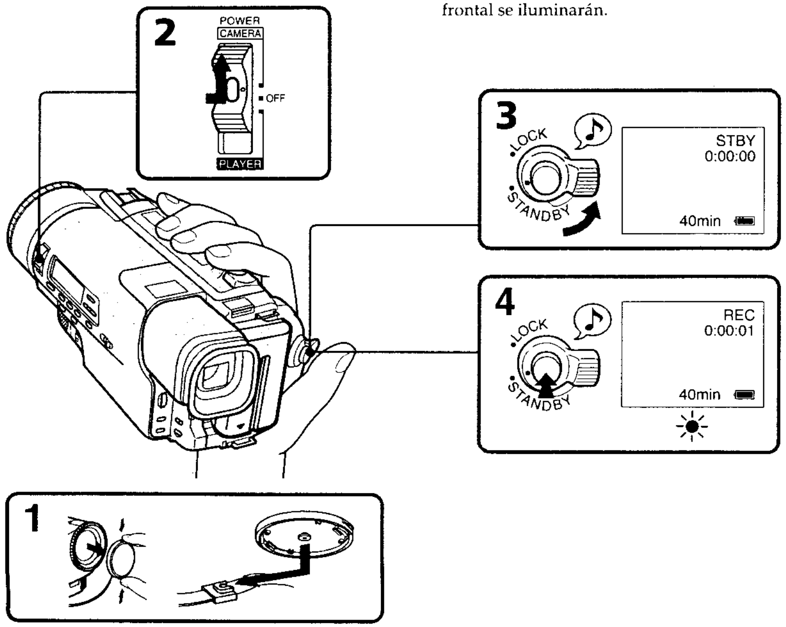
Cuando utilice la videocámara por primera vez, actívela y ajuste la fecha y hora antes de comenzar la grabación (pág. 92). Para ahorrar energía del paquete de batería, el visor electrónico mostrará la imagen sólo cuando acerque el rostro a dicho visor con el interruptor STANDBY hacia arriba (**ahorro de energía del visor electrónico**) (sólo CCD-TR3300E).

(1) Retire la tapa del objetivo.

(2) Ajuste el interruptor POWER en CAMERA mientras pulsa el botón verde pequeño del mismo.

(3) Gire STANDBY hacia arriba.

(4) Pulse START/STOP para que la videocámara inicie la grabación. El indicador "REC" aparece y el indicador rojo se ilumina en el visor electrónico. Los indicadores de batería y grabación de la cámara situados en la parte frontal se iluminarán.



To stop recording momentarily [a]

Press START/STOP again. The "STBY" indicator appears in the viewfinder (**Standby mode**).

To finish recording [b]

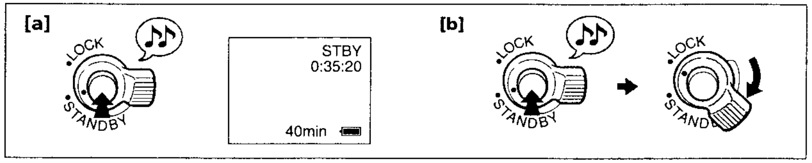
Press START/STOP again. Turn STANDBY down and set the POWER switch to OFF. Then, eject the cassette, remove the battery pack and put the lens cap on the lens.

Para detener la grabación momentáneamente [a]

Vuelva a pulsar START/STOP. El indicador "STBY" aparece en el visor electrónico (**modo de espera**).

Para finalizar la grabación [b]

Vuelva a pulsar START/STOP. Gire STANDBY hacia abajo y ajuste el interruptor POWER en OFF. A continuación, expulse el videocassette, extraiga el paquete de batería y coloque la tapa del objetivo sobre el mismo.

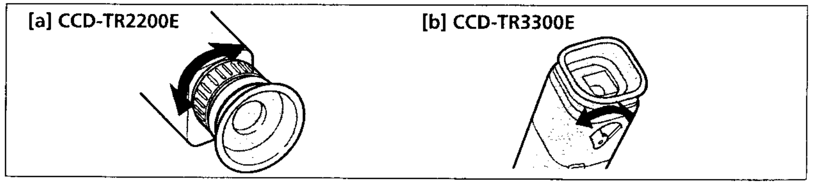


To focus the viewfinder lens

If you cannot see the indicators in the viewfinder clearly, or after someone else has used the camcorder, focus the viewfinder lens. When using a monochrome viewfinder, turn the viewfinder lens adjustment ring so that the indicators in the viewfinder come into sharp focus **[a]** (CCD-TR2200E). When using a colour viewfinder, move the viewfinder lens adjustment lever so that the indicators in the viewfinder come into sharp focus **[b]** (CCD-TR3300E).

Para enfocar el objetivo del visor electrónico

Si no puede ver con claridad los indicadores del visor electrónico o si alguien ha utilizado la videocámara, enfoque el objetivo. Si emplea un visor electrónico monocromo, gire el anillo de ajuste de objetivo del visor electrónico de forma que los indicadores de éste queden nítidamente enfocados **[a]** (CCD-TR2200E). Si emplea un visor electrónico en color, desplace la palanca de ajuste de objetivo del visor electrónico de forma que los indicadores de éste queden nítidamente enfocados **[b]** (CCD-TR3300E).



Note on Standby mode

If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down once and then up again. To start recording, press START/STOP.

Nota sobre el modo de espera

Si deja la videocámara en modo de espera durante 5 minutos mientras el videocassette se encuentra insertado, la videocámara se apagará automáticamente para evitar el desgaste del paquete de batería y de la cinta. Para reanudar el modo de espera, gire STANDBY hacia abajo una vez y, a continuación, hacia arriba. Para iniciar la grabación, pulse START/STOP.

Notes on recording mode

- This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode. The playback quality in LP mode, however, will not be as good as that in SP mode.
- When a tape recorded on this camcorder in LP mode is played back on other types of 8 mm camcorders or VCRs, the playback quality may not be as good as that on this camcorder.

Note on recording

When you record from the beginning of a tape, run the tape for about 15 seconds before starting the actual recording. This will ensure that you won't miss any start-up scenes when you play back the tape.

Notes on the tape counter

- The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET.
- If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect recording time. When you intend to edit the tape using the tape counter, record in same (SP or LP) mode.

Note on the beep sound

As indicated with ♪ in the illustrations, a beep sounds when you turn the power on or when you start recording, and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder.
Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system.

Notas sobre el modo de grabación

- Esta videocámara graba y reproduce en los modos SP (reproducción estándar) y LP (reproducción de larga duración). No obstante, la calidad de reproducción en modo LP no será tan satisfactoria como en modo SP.
- Cuando una cinta grabada en esta videocámara en modo LP se reproduce en otros tipos de videograbadoras o videocámaras de 8 mm, la calidad de reproducción puede ser inferior a la obtenida en esta videocámara.

Nota sobre la grabación

Si graba desde el principio de la cinta, deje que ésta avance durante 15 segundos aproximadamente antes de comenzar la grabación. De esta forma se evitará perder escenas iniciales al reproducir la cinta

Notas sobre el contador de cinta

- El contador de cinta indica el tiempo de grabación o reproducción. Empléelo como referencia. Suele marcar una diferencia de varios segundos con respecto al tiempo real. Para ajustar el contador a cero, pulse COUNTER RESET.
- Si la cinta se ha grabado mezclando los modos SP y LP, el contador de cinta mostrará un tiempo de grabación incorrecto. Cuando desee editar la cinta utilizando el contador de cinta, grabe en el mismo modo (SP o LP).

Nota sobre los pitidos

Como se indica con el símbolo ♪ en las ilustraciones, la unidad emite un pitido al activar la alimentación o al iniciar la grabación, y dos pitidos al detener ésta para confirmar la operación. Igualmente, la unidad emite varios pitidos como aviso de cualquier condición anormal de la videocámara.
Observe que los pitidos no se graban en la cinta. Si no desea oír los pitidos, seleccione "OFF" en el sistema de menú.

Notes on finder power save — CCD-TR3300E only

- The recording continues even when the picture in the viewfinder disappears during recording.
- If you set VF PW-SAVE to OFF in the menu system, the picture in the viewfinder does not disappear even when you turn your face away from the viewfinder.

When moving from indoors to outdoors (or vice versa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Using the zoom feature

Zooming is a recording technique that lets you change the size of the subject in the scene.
For more professional-looking recordings, use the zoom function sparingly.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)

Notas sobre el ahorro de energía del visor electrónico — Sólo CCD-TR3300E

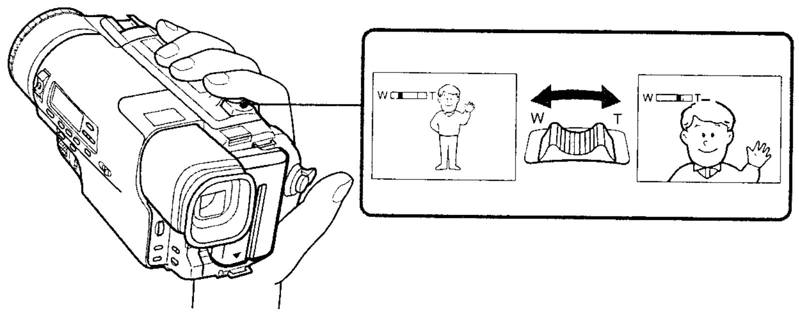
- La grabación seguirá realizándose aunque la imagen del visor electrónico desaparezca durante la grabación.
- Si ajusta VF PW-SAVE en OFF en el sistema de menú, la imagen del visor electrónico no desaparecerá aunque aleje su rostro de éste.

Cuando se desplace de interiores a exteriores (o viceversa)

Gire STANDBY hacia arriba y dirija la videocámara hacia un objeto blanco durante unos 15 segundos para ajustar correctamente el balance de blancos.

Uso de la función de zoom

El zoom es una técnica de grabación que permite modificar el tamaño del objeto de la escena. Para que las grabaciones adquieran una apariencia más profesional, emplee la función de zoom con moderación.
Lado "T": para telefoto (el objeto aparece más próximo)
Lado "W": para gran angular (el objeto aparece más alejado)



Zooming speed (Variable speed zooming)

Move the power zoom lever a little for a slower zoom, move it further for a faster zoom.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 80 cm (about 2 $^5/_8$ feet) away from the lens surface in the telephoto position, or about 1cm (about 1/2 inch) away in the wide-angle position.

Notes on digital zoom

- More than 21x zoom is performed digitally (42x), and the picture quality deteriorates as you go toward the "T" side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system.
- The right side **[a]** in the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you set the D ZOOM function to OFF, the **[a]** zone disappears.

Velocidad de zoom (Zoom de velocidad variable)

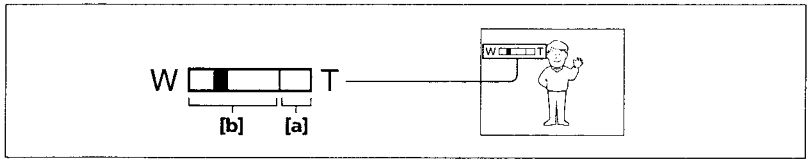
Desplace ligeramente la palanca de alimentación del zoom para obtener un efecto de zoom más lento. Si desea obtener un efecto de zoom más rápido, desplace dicha palanca en mayor medida.

Cuando filme un objeto con un zoom telefoto

Si no puede enfocar nítidamente cuando utilice el zoom telefoto en su posición extrema, desplace la palanca de alimentación del zoom al lado "W" hasta obtener un enfoque nítido. Es posible filmar un objeto que se encuentre a una distancia de al menos 80 cm (aproximadamente 2 $^5/_8$ pies) de la superficie del objetivo en la posición de telefoto, o de 1 cm (aproximadamente $^1/_2$ pulgada) en la posición de gran angular.

Notas sobre el zoom digital

- El zoom de más de 21x se realiza digitalmente (42x) y la calidad de imagen se deteriora a medida que se avanza hacia el lado "T". Si no desea utilizar el zoom digital, ajuste la función D ZOOM en OFF en el sistema de menú.
- El lado derecho **[a]** del indicador de alimentación del zoom muestra el área de zoom digital, mientras que el izquierdo **[b]** muestra el área de zoom óptico. Si ajusta la función D ZOOM en OFF, el área **[a]** desaparecerá.

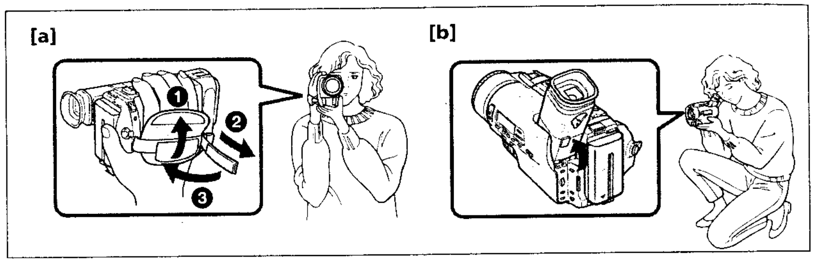


Hints for better shooting

Consejos para filmar mejor

For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:

Para filmar con la cámara en las manos, obtendrá mejores resultados si sujeta la videocámara según las siguientes sugerencias:



- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb **[a]**.
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. Be sure to not touch the built-in microphone.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting angle. Lift the viewfinder up for recording from a low position **[b]**.

Place the camcorder on a flat surface or use a tripod

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder.

When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 6.5 mm (9/32 inch). Otherwise, the screw may damage the inner parts of the camcorder.

- Sujete la videocámara firmemente y fíjela con la correa para poder manejar los controles fácilmente con el pulgar **[a]**.
- Mantenga el brazo con el que sujeta la videocámara pegado al costado.
- Coloque la mano izquierda debajo de la videocámara para sostenerla. Evite tocar el micrófono incorporado.
- Apoye el ocular del visor electrónico firmemente contra su ojo.
- Emplee el cuadro del visor electrónico como referencia para determinar el plano horizontal.
- También es posible grabar desde posiciones bajas para obtener un ángulo interesante. Levante el visor electrónico para grabar desde posiciones bajas **[b]**.

Coloque la videocámara sobre una superficie plana o emplee un trípode

Sitúe la videocámara sobre una mesa o cualquier otra superficie plana con la altura adecuada. Si dispone de un trípode para cámara fija, también puede utilizarlo con la videocámara.

Al fijar un trípode que no sea Sony, compruebe que la longitud del tornillo de trípode sea inferior a 6,5 mm (9/32 de pulgada), ya que en caso contrario el tornillo puede dañar los componentes internos de la videocámara.

If you wear glasses
You can bend back the eyecup to get a vetter view of viewfinder **[c]**.

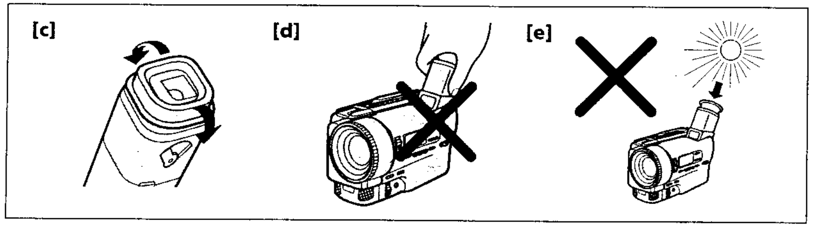
Cautions on the viewfinder

- Do not pick up the camcorder by the viewfinder **[d]**.
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder may be damaged. Be careful when placing the camcorder under sunlight or by a window **[e]**.

Si utiliza gafas
Es posible doblar hacia atrás el ocular con el fin de obtener una mejor visualización del visor electrónico **[c]**.

Precauciones sobre el visor electrónico

- No coja la videocámara por el visor electrónico **[d]**.
- Sitúe la videocámara de forma que el visor electrónico no quede orientado hacia el sol. En caso contrario, el interior de dicho visor puede dañarse.
  Tenga cuidado cuando sitúe la videocámara bajo la luz solar o junto a una ventana **[e]**.



Notes on the colour viewfinder — CCD-TR3300E only

- The colour viewfinder is made with high-precision technology. However, black points or bright points of light (red, blue, or green) may appear on the colour viewfinder. These points are not recorded on the tape. This is not a malfunction. (Effective dots : more than 99.99%).
- The finder power save function sometimes does not operate due to the effects of sunlight or flouressent light.
- In direct sunlight, the picture in the viewfinder looks brighter by the lighting aperture. The colour of the picture in the viewfinder is variable in such a case.

Notas sobre el visor electrónico en color — sólo CCD-TR3300E

- El visor electrónico en color está fabricado con tecnología de alta precisión. No obstante, es posible que aparezcan puntos negros o brillantes de luz (rojos, azules o verdes) en dicho visor. Estos puntos no se graban en la cinta ni se trata de un fallo de funcionamiento. (Puntos efectivos: más del 99,99%).
- La función de ahorro de energía del visor electrónico no se activa en determinadas ocasiones debido al efecto causado por la luz solar o las luces fluorescentes.
- Con luz solar directa, el brillo de la imagen del visor electrónico aumenta por la apertura de iluminación. En este caso, el color de dicha imagen será variable.

Checking the recorded picture

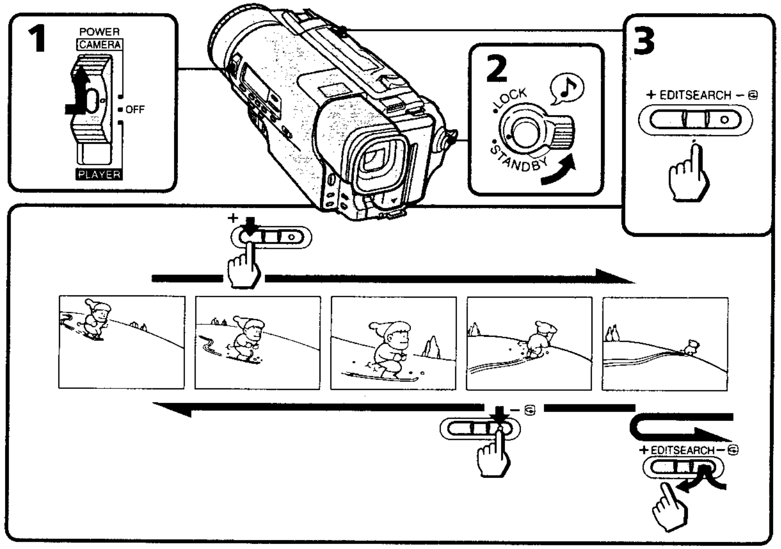
Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.
(2) Turn STANDBY up.
(3) Press the – ⊜ side of EDITSEARCH momentarily; the last few seconds of the recorded portion play back (**Rec Review**).
Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side (**Edit Search**).

Comprobación de imágenes grabadas

Con la función EDITSEARCH, es posible revisar la última escena grabada o comprobar la imagen grabada en el visor electrónico.

(1) Ajuste el interruptor POWER en CAMERA mientras pulsa el botón verde pequeño del mismo.
(2) Gire STANDBY hacia arriba.
(3) Pulse momentáneamente el lado – ⊜ de EDITSEARCH para reproducir los últimos segundos de la parte grabada (**revisión de grabación**).
Mantenga pulsado el lado – de EDITSEARCH para que la videocámara retroceda hasta la escena que desee. La última parte grabada se reproduce. Para avanzar, mantenga pulsado el lado + (**búsqueda de edición**).



To stop playback

Release EDITSEARCH.

To begin re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the tape, the transition between the last scene you recorded and the next scene you record will be smooth.

Para detener la reproducción

Suelte EDITSEARCH.

Para reanudar la grabación

Pulse START/STOP para reanudar la grabación a partir del punto donde ha dejado de pulsar EDITSEARCH. Siempre que no expulse la cinta, la transición entre la última escena grabada y la siguiente se realizará con uniformidad.

Connections for playback

Conexiones para la reproducción

You can use this camcorder as a VCR by connecting it to your TV for playback. There are some ways to connect the camcorder to your TV. When monitoring the playback picture by connecting the camcorder to your TV, we recommend you to use mains for the power source.

Connecting directly to a VCR/TV with Video/Audio input jacks

If your TV is already connected to a VCR

Open the jack cover and connect the camcorder to the LINE IN inputs on the VCR by using the supplied A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector on the TV to VCR.

If you are going to connect the camcorder using the S video cable (not supplied) **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]**.

If you use a monaural A/V connecting cable, you will get monaural sound.

Es posible emplear esta videocámara como una videograbadora para realizar reproducciones si la conecta al televisor. Existen varias formas para conectar la videocámara al televisor. Para controlar la imagen de reproducción mediante la conexión de la videocámara al televisor, se recomienda emplear una toma de red como fuente de alimentación.

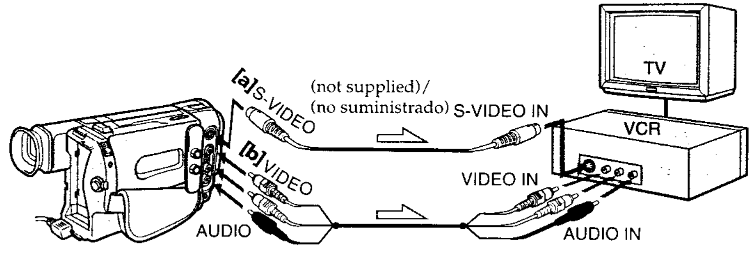
Conexión directa a una videograbadora/televisor con tomas de entrada de audio/vídeo

Si ya ha conectado el televisor a una videograbadora

Abra la cubierta de la toma y conecte la videocámara a las entradas LINE IN de la videograbadora con el cable de conexión de A/V suministrado. Ajuste el selector de entrada de la videograbadora en LINE y el selector TV/VCR del televisor en VCR.

Si va a conectar la videocámara con el cable de S vídeo (no suministrado) **[a]**, no es preciso conectar el enchufe amarillo (vídeo) del cable de conexión de A/V **[b]**.

Si emplea un cable de conexión de A/V monofónico, el sonido será monofónico.



⇨ : Signal flow/Flujo de señales

Connections for playback

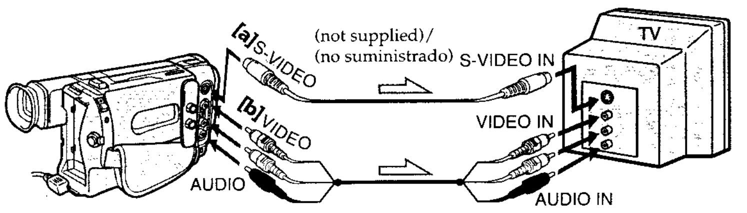
Conexiones para la reproducción

If you connect directly to TV

Open the jack cover and connect the camcorder to the inputs on the TV by using the supplied A/V connecting cable. Set the TV/VCR selector on the TV to VCR.

Si realiza la conexión directamente al televisor

Abra la cubierta de la toma y conecte la videocámara a las entradas del televisor con el cable de conexión de A/V suministrado. Ajuste el selector TV/VCR del televisor en VCR.



⇨ : Signal flow/Flujo de señales

If your VCR or TV is a monaural type

Connect only the white plug for audio on both the camcorder and the VCR or the TV. With this connection, the sound is monaural.

Si la videograbadora o el televisor es de tipo monofónico

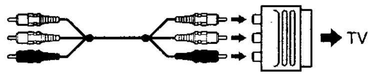
Conecte sólo el enchufe blanco de audio de la videocámara y de la videograbadora o del televisor. Con esta conexión, el sonido será monofónico.

If your VCR/TV has a 21-pin connector (EUROCONNECTOR)

Use the supplied 21-pin adaptor.

Si la videograbadora o el televisor dispone de un conector de 21 pines (EUROCONNECTOR)

Utilice el adaptador de 21 pines suministrado.



To connect to a VCR or TV without Video/Audio input jacks

Use an RFU adaptor (not supplied).

Para realizar la conexión a una videograbadora o a un televisor sin tomas de entrada de audio/vídeo

Utilice un adaptador RFU (no suministrado).

Playing back a tape

You can monitor the playback picture in the viewfinder. You can also monitor a picture on a TV screen, after connecting the camcorder to a TV or VCR.

(1) While pressing the small green button on the POWER switch, set it to PLAYER. The tape transport buttons light up.

(2) Insert the recorded tape with the window facing out.

(3) Press ▷ to start playback.

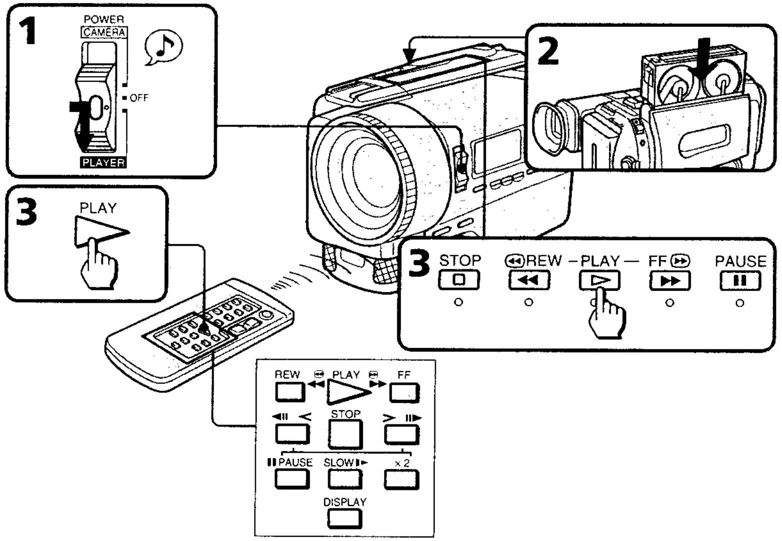
Reproducción de cintas

Es posible controlar la imagen de reproducción en el visor electrónico. También es posible controlar imágenes en la pantalla de un televisor después de conectar la videocámara a un televisor o a una videograbadora.

(1) Ajuste el interruptor POWER en PLAYER mientras pulsa el botón verde pequeño del mismo. Los botones de transporte de cinta se iluminan.

(2) Inserte la cinta grabada con la ventana orientada hacia fuera.

(3) Pulse ▷ para iniciar la reproducción.



To stop playback, press □.
To rewind the tape, press ◀◀.
To fast-forward the tape rapidly, press ▶▶.

Para detener la reproducción, pulse □.
Para rebobinar la cinta, pulse ◀◀.
Para que la cinta avance rápidamente, pulse ▶▶.

Using the remote commander

You can control playback using the supplied Remote Commander. Before using the Remote Commander, insert the R6 (size AA) batteries.

To display the viewfinder screen indicators on the TV
Press DISPLAY on the Remote Commander. To erase the indicators, press DISPLAY again.

To monitor the sound while viewing the playback picture in the viewfinder
Connect headphones (not supplied) to the 🎧 jack.

Various playback modes

To view a still picture (playback pause)

Press II during playback. To resume playback, press II or ▷.

To locate a scene (picture search)

Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing the tape or rewinding (skip scan)

Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture at 1/5 speed (slow playback)

Press SLOW I▶ on the Remote Commander during playback. To resume normal playback, press ▷. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

To view the picture at double speed

For double speed playback in the reverse direction, press ◀II<, then press x2 on the Remote Commander during playback. For double speed playback in the forward direction, press >II▶, then press x2 during playback. To resume normal playback, press ▷.

Uso del mando a distancia

Es posible controlar la reproducción con el mando a distancia suministrado. Antes de emplearlo, inserte las pilas R6 (tamaño AA).

Para mostrar los indicadores de pantalla del visor electrónico en el televisor
Pulse DISPLAY en el mando a distancia. Para que los indicadores desaparezcan, vuelva a pulsar DISPLAY.

Para controlar el sonido mientras visualiza la imagen de reproducción en el visor electrónico
Conecte los auriculares (no suministrados) a la toma 🎧.

Diversos modos de reproducción

Para visualizar imágenes fijas (pausa de reproducción)

Pulse II durante la reproducción. Para reanudar ésta, pulse II o ▷.

Para localizar una escena (búsqueda de imágenes)

Mantenga pulsado ◀◀ o ▶▶ durante la reproducción. Para reanudar la reproducción normal, suelte el botón.

Para controlar la imagen a alta velocidad mientras avanza o rebobina la cinta (exploración con omisión)

Mantenga pulsado ◀◀ mientras rebobina o ▶▶ mientras avanza la cinta. Para reanudar la reproducción normal, pulse ▷.

Para visualizar la imagen a un 1/5 de la velocidad normal (reproducción lenta)

Pulse SLOW I▶ en el mando a distancia durante la reproducción. Para reanudar la reproducción normal, pulse ▷. Si la reproducción lenta dura 1 minuto aproximadamente, ésta cambiará automáticamente a velocidad normal.

Para visualizar la imagen a velocidad doble

Para realizar la reproducción a velocidad doble en sentido regresivo, pulse ◀II< y, a continuación, x2 en el mando a distancia durante la reproducción. Para realizar la reproducción a velocidad doble en sentido progresivo, pulse >II▶ y, a continuación, x2 durante la reproducción. Para reanudar la reproducción normal, pulse ▷.

To view the picture frame-by-frame

Press ◄II< or >II► on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/25 speed. To resume normal playback, press ▷.

To change the playback direction

Press ◄II < on the Remote Commander for reverse direction or > II► on the Remote Commander for forward direction during playback. To resume normal playback, press ▷.

To select the playback sound

Change the "HiFi SOUND" mode setting in the menu system.

Notes on playback

- Streaks appear and the sound is muted in the various playback modes.
- When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode.
- Horizontal noise appears at the centre of the screen when you play back a tape in reverse or in various speed if the RC time code or the Data Code is displayed on the screen. This is normal.
- The playback picture may be shaken up and down in slow playback. This is normal.

Displaying the date or time when you recorded – data code function

Even if you did not record the date or time when you were recording, you can display the date or time when you recorded (Data Code) on the TV during playback or editing. The Data Code is also displayed in the viewfinder and the display window.

Para visualizar la imagen fotograma a fotograma

Pulse ◄II< o >II► en el mando a distancia durante el modo de pausa de reproducción. Si mantiene el botón pulsado, podrá visualizar la imagen a 1/25 de la velocidad normal. Para reanudar la reproducción normal, pulse ▷.

Para cambiar el sentido de reproducción

Pulse ◄II < en el mando a distancia para cambiar al sentido regresivo o > II► para cambiar al sentido progresivo durante la reproducción.
Para reanudar la reproducción normal, pulse ▷.

Para seleccionar el sonido de reproducción

Cambie el ajuste de modo de "HiFi SOUND" en el sistema de menú.

Notas sobre la reproducción

- En los diferentes modos de reproducción aparecen rayas y el sonido desaparece.
- Si el modo de pausa de reproducción dura 5 minutos aproximadamente, la videocámara introduce automáticamente el modo de parada.
- Si el código de tiempos RC o el código de datos se muestra en pantalla, aparece ruido horizontal en el centro de la pantalla cuando se reproduce una cinta en sentido regresivo o a distintas velocidades. Esto es normal.
- La imagen de reproducción puede presentar vibraciones arriba y abajo durante el modo de reproducción lenta. Esto es normal.

Visualización de la fecha o la hora de grabación – función de código de datos

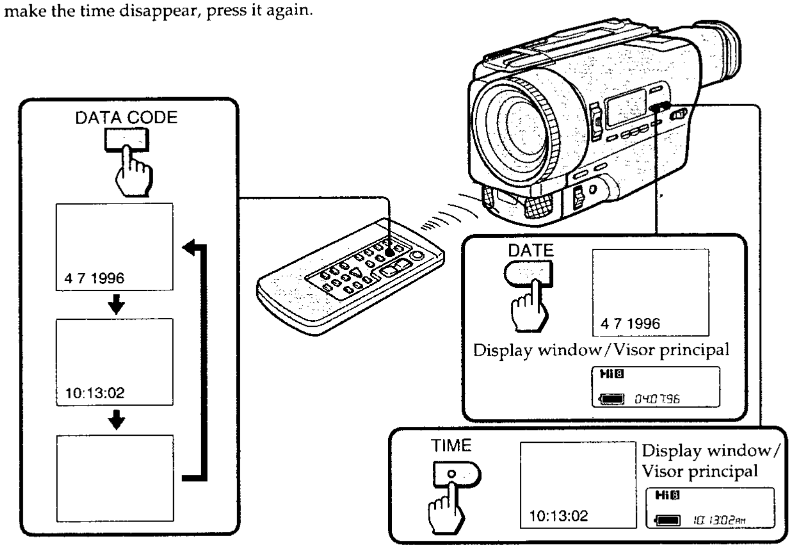
Es posible mostrar la fecha o la hora de grabación (código de datos) en el televisor durante la reproducción o la edición, aunque no haya registrado dichos elementos durante la grabación. El código de datos también aparece en el visor electrónico y en el visor principal.

To display the date when you recorded

Press DATE on the camcorder, or press DATA CODE on the Remote Commander. To make the date disappear, press DATE again or DATA CODE twice.

To display the time when you recorded

Press TIME on the camcorder, or press DATA CODE on the Remote Commander twice. To make the time disappear, press it again.


DATA CODE
4 7 1996
10:13:02
DATE
4 7 1996
Display window/Visor principal
TIME
10:13:02
Display window/Visor principal

When bars (--:--:--) appear

- A blank portion of the tape is being played back.
- The tape was recorded by a camcorder without the Data Code function.
- The tape was recorded by a camcorder without having date and time set.
- The tape is unreadable due to tape damage or noise.
- The tape was recorded in LP mode.
- The tape is being played back in variable speed (Slow Playback, etc.)
- An index signal is marked, the RC time code is written, or PCM after recording is made on the tape.

Para mostrar la fecha de grabación

Pulse DATE en la videocámara o DATA CODE en el mando a distancia. Para que la fecha desaparezca, vuelva a pulsar DATE o DATA CODE dos veces.

Para mostrar la hora de grabación

Pulse TIME en la videocámara o DATA CODE en el mando a distancia dos veces. Para que la hora desaparezca, vuelva a pulsar dichos botones.

Si aparecen barras (--:--:--)

- Se está reproduciendo una parte sin grabación de la cinta.
- La cinta se ha grabado con una videocámara desprovista de la función de código de datos.
- La cinta se ha grabado sin haber ajustado la fecha y la hora en la videocámara.
- La cinta es ilegible debido a daños o ruido de dicha cinta.
- La cinta se ha grabado en modo LP.
- La cinta está reproduciéndose a velocidad variable (reproducción lenta, etc.)
- Se ha marcado una señal de índice, se ha introducido el código de tiempos RC o se ha reproducido la cinta en modo PCM después de la grabación.

Advanced operations

Using alternative power sources

You can choose any of the following power sources for your camcorder: battery pack, mains, and 12/24 V car battery. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	Mains	Supplied AC power adaptor
Outdoors	Battery pack	Battery pack NP-F530 (supplied), NP-F730
In the car	12 V or 24 V car battery	Car battery charger DC-V515

Note on power sources

Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

Using the mains

To use the supplied AC power adaptor:

(1) Connect the AC mains lead to mains, then connect the connecting cord to the DC OUT jack on the AC power adaptor.

(2) Insert the connecting plate into the guides at the bottom of the camcorder.

Operaciones avanzadas

Uso de fuentes de alimentación alternativas

Es posible elegir cualquiera de las siguientes fuentes de alimentación para la videocámara: paquete de batería, corriente doméstica y batería de automóvil de 12/24 V. Elija la fuente de alimentación adecuada en función del lugar donde desee emplear la videocámara.

Lugar	Fuente de alimentación	Accesorio necesario
Interiores	Toma de red	Adaptador de alimentación de CA suministrado
Exteriores	Paquete de batería	Paquete de batería NP-F530 (suministrado), NP-F730
En el automóvil	Batería de automóvil de 12 V o 24 V	Cargador de batería de automóvil DC-V515

Nota sobre las fuentes de alimentación

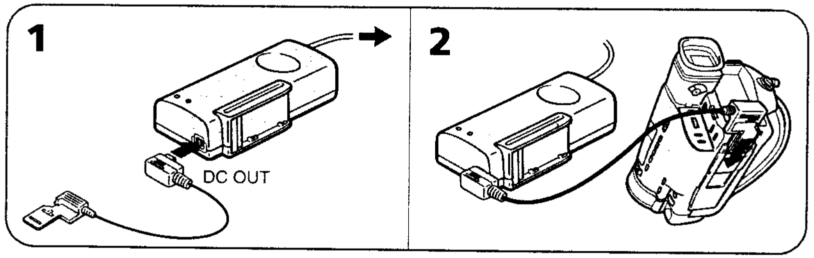
Si desconecta la fuente de alimentación o si retira el paquete de batería durante la grabación o la reproducción, es posible que dañe la cinta insertada. Si esto ocurre, restablezca el suministro de alimentación inmediatamente.

Uso de corriente doméstica

Para emplear el adaptador de alimentación de CA suministrado:

(1) Conecte el cable de alimentación de CA a una toma de red y, a continuación, el cable de conexión a la toma DC OUT del adaptador de alimentación de CA.

(2) Inserte la placa de conexión en las guías situadas en la parte inferior de la videocámara.



Using alternative power sources

Charging the battery pack

After connecting the mains lead to the mains and setting the POWER switch on the camcorder to OFF, you can charge the battery pack in either of the following two ways:
(When charging begings, the CHARGE lamp lights.)

- Charging the battery attached to the camcorder
  Leave the battery pack attached to the camcorder. (The NP-F530 battery pack requires about 210 minutes for a full charge and about 150 minutes for a normal charge.)
- Charging two battery packs at the same time
  Attach one battery pack to the AC power adaptor and other to the camcorder. Both are charged simultaneously. When charged, both lamps go out (normal charge). If either lamp is still lit, both batteries are not charged (the NP-F530 battery packs require about 240 minutes for a full charge and about 180 minutes for a normal charge).

Notes on the VTR/CAMERA lamp

- The VTR/CAMERA lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the VTR/CAMERA lamp does not light, disconnect the mains lead. After about 1 minute, reconnect the mains lead.

To remove the connecting plate

Pull out the connecting plate by the plate. Never pull the connecting cord itself.

WARNING

The mains lead must only be changed at a qualified service shop.

PRECAUTION

The set is not disconnected from the AC power source (mains) as long as it is connected to the mains, even if the set itself has been turned off.

Uso de fuentes de alimentación alternativas

Carga del paquete de batería

Después de conectar el cable de alimentación a la toma de corriente y de ajustar el interruptor POWER de la videocámara en OFF, es posible cargar el paquete de batería de cualquiera de las siguientes formas:
(Al iniciarse la carga, el indicador CHARGE se ilumina.)

- Cargar el paquete fijado a la videocámara. Deje el paquete fijado a la videocámara. (El paquete de batería NP-F530 requiere 210 minutos aproximadamente para la carga completa y 150 minutos aproximadamente para la normal.)
- Cargar simultáneamente dos paquetes de batería. Fije un paquete de batería al adaptador de alimentación de CA y el otro a la videocámara. De esta forma, los dos se cargarán simultáneamente. Una vez cargados, los dos indicadores se apagarán (carga normal). Si alguno de los indicadores permanece encendido significa que los dos paquetes no se han cargado (los paquetes de batería NP-F530 requieren unos 240 minutos para la carga completa y unos 180 minutos para la normal).

Notas sobre el indicador VTR/CAMERA

- Este indicador permanecerá iluminado durante unos segundos tras desenchufar la unidad después de su uso. Esto es normal.
- Si este indicador no se ilumina, desconecte el cable de alimentación y vuelva conectarlo después de 1 minuto aproximadamente.

Para extraer la placa de conexión

Tire de ella y nunca del propio cable de conexión.

ADVERTENCIA

El cable de alimentación debe ser sustituido únicamente en un centro de asistencia técnica especializado.

PRECAUCION

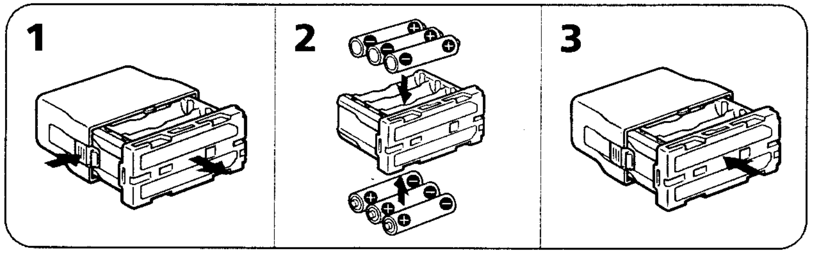
La unidad no estará desconectada de la fuente de alimentación de CA (toma de red) mientras esté conectada a la toma de corriente, aunque la haya apagado.

Using the battery case

Use the battery case (suplied) and six LR6 (size AA) Sony Alkaline batteries (not supplied).
(1) Remove the battery holder from the battery case.
(2) Insert six new alkaline batteries into the battery holder, following the marking on the holder to be sure the batteries are installed in the correct direction.
(3) Insert the battery holder with the alkaline batteries.
(4) Insert the battery case with the alkaline batteries to the battery mounting surface of the camcorder in the same way as the battery pack.

Uso del estuche de pilas

Emplee este estuche (suministrado) con seis pilas alcalinas Sony LR6 (tamaño AA) (no suministradas).
(1) Extraiga el portapilas del estuche de pilas.
(2) Inserte seis pilas alcalinas nuevas en el portapilas observando las marcas existentes en el mismo con el fin de instalar las pilas en la dirección correcta.
(3) Inserte el portapilas con las pilas alcalinas.
(4) Inserte el estuche de pilas con las pilas alcalinas en la superficie de montaje de pilas de la videocámara de la misma forma que el paquete de batería.



Battery life

Using Sony alkaline batteries at 25°C (77°F).

	Continuous recording time	Typical recording time
CCD-TR3300E	70 min.	40 min.
CCD-TR2200E	80 min.	50 min.

Notes on the battery life

- The battery life may be shorter depending on the using environment.
- The battery lives are estimates. The battery life may be shorter depending on the storage condition of the battery before being purchased and temperature.
- You may not use the battery case in cold environment.

Duración de las pilas

Empleo de pilas alcalinas Sony a una temperatura de 25°C (77°F).

	Tiempo de grabación continua	Tiempo de grabación normal
CCD-TR3300E	70 min.	40 min.
CCD-TR2200E	80 min.	50 min.

Notas sobre la duración de las pilas

- La duración de las pilas puede reducirse en función del lugar de empleo.
- El tiempo de duración de las pilas es aproximado. Su duración puede reducirse en función de la temperatura y de las condiciones de almacenamiento de la pila antes de su adquisición.
- Es posible que no pueda emplear el estuche de pilas en ambientes fríos.

To remove the battery case
The battery case is removed in the same way as the battery pack.

Para extraer el estuche de pilas
El estuche de pilas se extrae de la misma forma que el paquete de batería.

Using a car battery

Use the DC-V515 car battery charger (not supplied). Connect the car battery cord to the cigarette lighter socket of a car (12 V or 24 V). Connect the car battery cord to the camcorder in the same way as you connect the AC power adaptor.

This mark indicates that this product is a genuine accessory for Sony video products.
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Uso de batería de automóvil

Emplee el cargador de batería de automóvil DC-V515 (no suministrado). Conecte el cable de batería de automóvil a la clavija del encendedor del automóvil (12 V o 24 V). Conecte dicho cable a la videocámara de la misma forma que conecta el adaptador de alimentación de CA.

Esta marca indica que este producto es un accesorio genuino para los productos de vídeo Sony.
Al adquirir productos de vídeo Sony, se recomienda que los accesorios adquiridos presenten la marca "GENUINE VIDEO ACCESSORIES".

Changing the mode settings

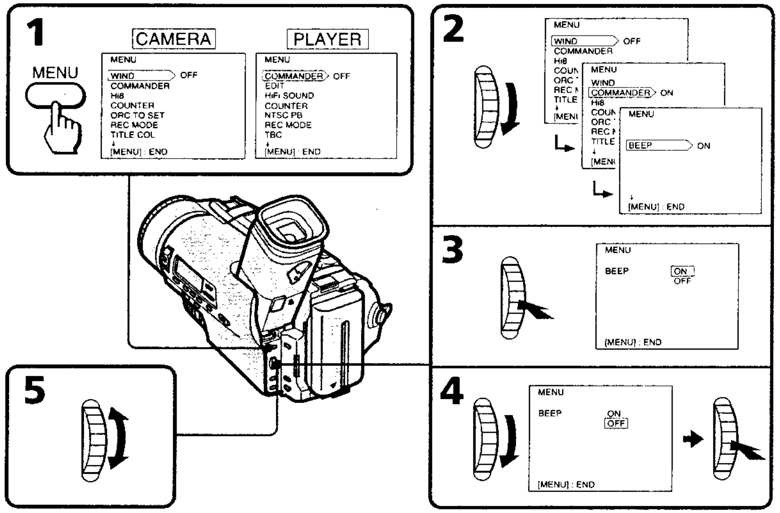
You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder.

(1) Press MENU to display the menu.
(2) Turn the control dial so that the desired item is highlighted white.
(3) Press the control dial. The setting menu appears.
(4) Turn the control dial to highlight a setting, and press the control dial to select it.
(5) If you want to change the other modes, repeat steps 2 to 4.
(6) Press MENU to erase the menu display.

Cambio de los ajustes de modo

Es posible cambiar los ajustes de modo en el sistema de menú para disfrutar en mayor medida de las características y funciones de la videocámara.

(1) Pulse MENU para que aparezca el menú.
(2) Gire el dial de control para resaltar en blanco el elemento que desee.
(3) Pulse el dial de control para que aparezca el menú de ajustes.
(4) Gire el dial de control para resaltar un ajuste y, a continuación, púlselo para seleccionarlo.
(5) Si desea cambiar los otros modos, repita los pasos 2 a 4.
(6) Pulse MENU para que el menú desaparezca.



Selecting the mode setting of each item

Items for both CAMERA and PLAYER modes

COUNTER <NORMAL/TIME CODE>
- Normally select NORMAL.
- Select TIME CODE to display the RC time code in order to edit more precisely.

COMMANDER <ON/OFF>
- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander.

BEEP <ON/OFF>
- Select ON so that beeps sound when you start/stop recording, etc.
- Select OFF when you do not want to hear the beep sound.

VF BRIGHT*(CCD-TR3300E only)
Select this item to adjust the brightness of the viewfinder. The viewfinder becomes brighter when you turn the control dial up, and darker when you turn the control dial down.

VF PW-SAVE* <ON/OFF> (CCD-TR3300E only)
- Select ON to activate finder power save function.
- Select OFF to not use finder power save function.

Items for CAMERA mode only

WIND <ON/OFF>
- Select ON to reduce wind noise when recording in strong wind.
- Normally select OFF.

Hi8 <AUTO/OFF>
- Normally select AUTO to have the camcorder automatically set the recording mode (Hi8 or standard 8 mm) depending upon the cassette type being used.
- Select OFF to record a Hi8 tape in standard 8 mm format.

Selección del ajuste de modo de cada elemento

Elementos de los modos CAMERA y PLAYER

COUNTER <NORMAL/TIME CODE>
- Normalmente, seleccione NORMAL.
- Seleccione TIME CODE para mostrar el código de tiempos RC con el fin de editar con mayor precisión.

COMMANDER <ON/OFF>
- Seleccione ON cuando emplee el mando a distancia suministrado para controlar la videocámara.
- Seleccione OFF cuando no emplee el mando a distancia.

BEEP <ON/OFF>
- Seleccione ON para que la unidad emita pitidos al iniciar o detener la grabación, etc.
- Seleccione OFF si no desea oír los pitidos.

VF BRIGHT*(sólo CCD-TR3300E)
Seleccione este elemento para ajustar el brillo del visor electrónico. El brillo del visor electrónico aumentará al girar el dial de control hacia arriba y disminuirá al girar dicho control hacia abajo.

VF PW-SAVE* <ON/OFF> (sólo CCD-TR3300E)
- Seleccione ON para activar la función de ahorro de energía del visor electrónico.
- Seleccione OFF si no desea emplear dicha función.

Elementos del modo CAMERA solamente

WIND <ON/OFF>
- Seleccione ON para reducir el ruido del viento cuando grabe con viento fuerte.
- Normalmente seleccione OFF.

Hi8 <AUTO/OFF>
- Normalmente seleccione AUTO para que la videocámara ajuste automáticamente el modo de grabación (Hi8 u 8 mm estándar) en función del tipo de videocassette que se emplee.
- Seleccione OFF para grabar una cinta Hi8 en el formato estándar de 8 mm.

ORC TO SET* <ORC ON>
Select ORC ON to automatically adjust the recording condition to get the best possible recording.

REC MODE* <SP/LP>
- Select SP when recording in SP (standard play) mode.
- Select LP when recording in LP (long play) mode.

D ZOOM* <ON/OFF>
- Select ON to activate digital zooming.
- Select OFF to not use the digital zoom. The camera goes back to 21x zoom.

REC LAMP* <ON/OFF>
- Select OFF when you do not want the camera recording/battery lamp at the front of the unit to light up.
- Normally select ON.

AE SHIFT*
Select this item to adjust the brightness of the picture.

TITLE COL* <BLUE/ GREEN/ CYAN/ RED/ VIOLET/ YELLOW/ WHITE>
Select the colour of the title.

TITLE POS* <CENTER/BOTTOM>
- Select CENTER to centre the title in the picture.
- Select BOTTOM to position the title at the bottom of the picture.

TITLE LANG* <ENGLISH/ FRANÇAIS/ ESPAÑOL/ PORTUGUÊS/ DEUTSCH/ NEDERLANDS/ ITALIANO>
Select the language of the preset titles.

TITLE 1 SET* TITLE 2 SET*
Select to store your own original titles.

CLOCK SET*
Select this item to reset the date or time.

ORC TO SET* <ORC ON>
Seleccione ORC ON para ajustar automáticamente la condición de grabación con el fin de obtener los mejores resultados posibles de grabación.

REC MODE* <SP/LP>
- Seleccione SP cuando grabe en modo SP (reproducción estándar).
- Seleccione LP cuando grabe en modo LP (reproducción de larga duración).

D ZOOM* <ON/OFF>
- Seleccione ON para activar el zoom digital.
- Seleccione OFF si no desea emplear el zoom digital. La cámara volverá al zoom de 21x.

REC LAMP* <ON/OFF>
- Seleccione OFF si no desea que se ilumine el indicador de batería y grabación de la cámara situado en la parte frontal de la unidad.
- Normalmente seleccione ON.

AE SHIFT*
Seleccione este elemento para ajustar el brillo de la imagen.

TITLE COL* <BLUE/ GREEN/ CYAN/ RED/ VIOLET/ YELLOW/ WHITE> (azul/verde/cian/ rojo/violeta/amarillo/blanco)
Seleccione el color del título.

TITLE POS* <CENTER/BOTTOM>
- Seleccione CENTER para centrar el título en la imagen.
- Seleccione BOTTOM para situar el título en la parte inferior de la imagen.

TITLE LANG* <ENGLISH/ FRANÇAIS/ ESPAÑOL/ PORTUGUÊS/DEUTSCH/ NEDERLANDS/ ITALIANO>
Seleccione el idioma de los títulos definidos.

TITLE 1 SET* TITLE 2 SET*
Realice la selección para almacenar sus propios títulos.

CLOCK SET*
Seleccione este elemento para reajustar la fecha o la hora.

Items for PLAYER mode only

EDIT <ON/OFF>
- Select ON to minimize picture deterioration when editing.
- Normally select OFF.

HiFi SOUND <STEREO/1/2>
- Normally select STEREO.
- Select 1 or 2 to play back a dual sound track tape.

NTSC PB <ON PAL TV/NTSC 4.43>
- Normally select ON PAL TV.
- Select NTSC 4.43 when playing back a tape recorded in the NTSC colour system. If you have a multi-system TV, you can see an NTSC-recorded tape also on the TV.

TBC* <ON/OFF>
- Select ON to correct for jitter.
- Select OFF to not correct for jitter. The picture may not be steady when you playback.

DNR* <ON/OFF>
- Select ON to reduce picture noise.
- Select OFF to not reduce noise.

* These settings are retained even when the battery is removed, as long as the lithium battery is in place.

Note on TBC setting
Set TBC to OFF when playing back:
- A tape you have dubbed over.
- A tape on which you recorded the signal of a TV game or similar machine.

Elementos del modo PLAYER solamente

EDIT <ON/OFF>
- Seleccione ON para minimizar el deterioro de imagen al editar.
- Normalmente seleccione OFF.

HiFi SOUND <STEREO/1/2>
- Normalmente seleccione STEREO.
- Seleccione 1 o 2 para reproducir cintas de pistas de sonido dual.

NTSC PB <ON PAL TV/NTSC 4.43>
- Normalmente seleccione ON PAL TV.
- Seleccione NTSC 4.43 cuando reproduzca cintas grabadas en el sistema de color NTSC. Si dispone de un televisor de sistema múltiple, también es posible visualizar en él cintas grabadas en el sistema NTSC.

TBC* <ON/OFF>
- Seleccione ON para corregir vibraciones.
- Seleccione OFF si no es preciso corregir vibraciones. Es posible que la imagen sea inestable al realizar la reproducción.

DNR* <ON/OFF>
- Seleccione ON para reducir el ruido de imagen.
- Seleccione OFF si no es preciso reducir el ruido de imagen.

* Estos ajustes se mantienen aunque extraiga la batería, siempre que no retire la pila de litio.

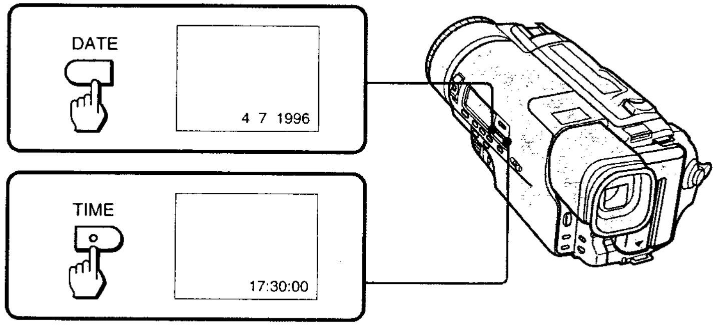
Nota sobre el ajuste TBC
Ajuste TBC en OFF cuando reproduzca:
- Una cinta copiada.
- Una cinta en la que haya grabado la señal de un juego de televisión o de un aparato similar.

Recording with the date or time

Before you start recording or during recording, press DATE or TIME. You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.
The clock is already set at the factory; to London time for United Kingdom and to Paris time for the other European countries. You can reset the clock in the menu system.

Grabación con la fecha o la hora

Antes de iniciar la grabación o durante ésta, pulse DATE o TIME. Es posible grabar la fecha o la hora que aparece en el visor electrónico junto con la imagen. No es posible grabar simultáneamente la fecha y la hora. Excepto el indicador de fecha u hora, no se grabará ningún indicador del visor electrónico.
Aunque el reloj está ajustado de fábrica a la hora de Londres para el Reino Unido y a la hora de París para el resto de países europeos, es posible reajustarlo en el sistema de menú.



To stop recording with the date or time

Press DATE or TIME again. The date or time indicator disappears. The recording continues.

Note on the date or time indicator

If you press DATE or TIME while you are recording in CINEMA mode, the indicators in the viewfinder move upwards.

Para detener la grabación con la fecha o la hora

Vuelva a pulsar DATE o TIME. El indicador de fecha u hora desaparecerá y la grabación continuará.

Nota sobre el indicador de fecha u hora

Si pulsa DATE o TIME durante la grabación en modo CINEMA, los indicadores del visor electrónico se desplazan hacia arriba.

Fade-in and fade-out

You can fade in or out to give your recording a professional appearance.
When fading in, the picture gradually fades in from black or mosaic while the sound increases.
When fading out, the picture gradually fades to black or mosaic while the sound decreases.

When fading in [a]

(1) While the camcorder is in Standby mode, press FADER/OVERLAP (only for CCD-TR3300E), or FADER (only for CCD-TR2200E). The fade indicator starts flashing.
(2) Press START/STOP to start recording. The fade indicator stops flashing.

When fading out [b]

(1) During recording, press FADER/OVERLAP (only for CCD-TR3300E), or FADER (only for CCD-TR2200E). The fade indicator starts flashing.
(2) Press START/STOP to stop recording. The fade indicator stops flashing, and then recording stops.

Aparición y desaparición gradual de imágenes

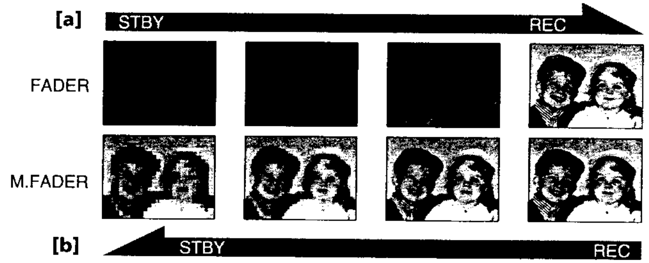
Emplee esta función para dar a las grabaciones un aspecto profesional.
Con la aparición gradual, la imagen aparece gradualmente desde el negro o mosaico mientras el sonido aumenta. Con la desaparición gradual, la imagen se funde gradualmente en negro o mosaico mientras el sonido disminuye.

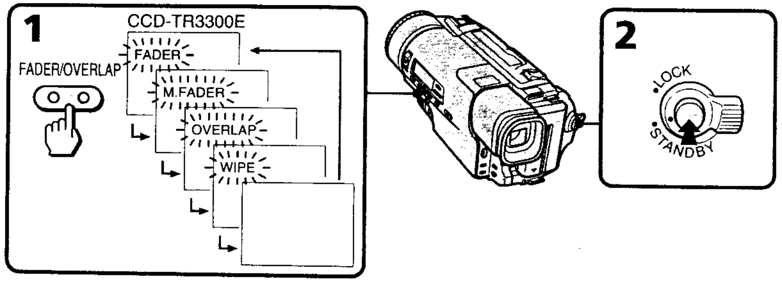
Aparición gradual [a]

(1) Mientras la videocámara se encuentra en modo de espera, pulse FADER/OVERLAP (sólo CCD-TR3300E) o FADER (sólo CCD-TR2200E). El indicador de atenuación comenzará a parpadear.
(2) Pulse START/STOP para iniciar la grabación. El indicador de atenuación dejará de parpadear.

Desaparición gradual [b]

(1) Durante la grabación, pulse FADER/OVERLAP (sólo CCD-TR3300E) o FADER (sólo CCD-TR2200E). El indicador de atenuación comenzará a parpadear.
(2) Pulse START/STOP para detener la grabación. El indicador de atenuación dejará de parpadear y, a continuación, la grabación se detendrá.





Note on fade indicator –CCD-TR2200E only
Each time you press FADER, the fade indicator changes: FADER → M.FADER → no indicator, cyclically.

To cancel the fade-in/fade-out function

Before pressing START/STOP, press FADER/ OVERLAP (only for CCD-TR3300E), or FADER (only for CCD-TR2200E) until the fade indicator disappears.

When the date or time indicator is displayed
The date or time indicator does not fade in or fade out.

Note on fade-in/fade-out
Fade-in/fade-out function is cancelled after executing this function.

When the title is displayed
You cannot use the FADER function. When FADER is set, you cannot superimpose a title.

Nota sobre el indicador de atenuación - sólo CCD-TR2200E
Cada vez que pulse FADER, el indicador de atenuación cambia cíclicamente de la siguiente forma: FADER → M.FADER → ningún indicador.

Para cancelar la función de aparición y desaparición gradual de imágenes

Antes de pulsar START/STOP, pulse FADER/ OVERLAP (sólo CCD-TR3300E) o FADER (sólo CCD-TR2200E) hasta que el indicador de atenuación desaparezca.

Si se visualiza el indicador de fecha u hora
Este indicador no aparece ni desaparece gradualmente.

Nota sobre la función de aparición y desaparición gradual
Esta función se cancelará una vez empleada.

Cuando se visualice un titulo
No podrá utilizar la función FADER. Cuando FADER esté activada, no podrá superponer un título.

Overlapping two pictures (CCD-TR3300E only)

Superposición de dos imágenes (sólo CCD-TR3300E)

When you switch from one scene to another, you can overlap the two pictures. With this function, the first scene turns to the second one gradually. You can hear the sound of the second scene gradually as you start recording the second scene.

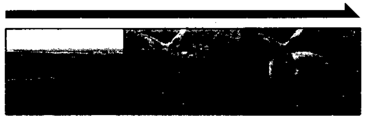
Al pasar de una escena a otra, es posible superponer las dos imágenes. Con esta función, la primera escena cambia gradualmente a la segunda. Es posible escuchar gradualmente el sonido de la segunda escena al iniciar la grabación de la misma.

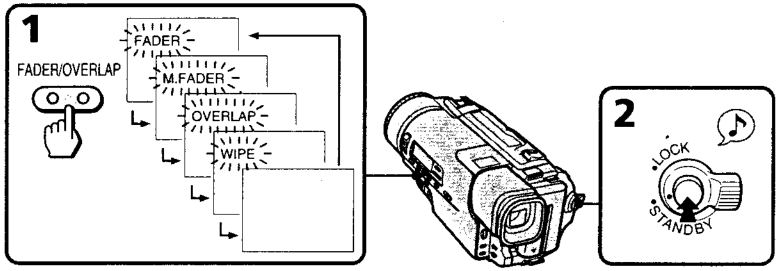
Overlapping two pictures (CCD-TR3300E only)

Superposición de dos imágenes (sólo CCD-TR3300E)

(1) While the camcorder is in Standby mode, press FADER/OVERLAP repeatedly so that the OVERLAP indicator appears in the viewfinder.
(2) Press START/STOP to record the next scene. The OVERLAP indicator disappears after the overlapping.

(1) Mientras la videocámara se encuentra en modo de espera, pulse FADER/OVERLAP varias veces de forma que el indicador OVERLAP aparezca en el visor electrónico.
(2) Pulse START/STOP para grabar la siguiente escena. El indicador OVERLAP desaparecerá después del proceso de superposición.





Notes on overlap
- You cannot use the following functions while using the overlap function. Also, while using the following functions, you cannot use the overlap function.
  - Digital effect
  - Slow shutter
  - Title
- You can select overlap during recording.
- When you select the overlap function after using the following operations, the camcorder memorizes the image on the tape. As the image is being memorized, the OVERLAP indicator flashes quickly, and the picture you are shooting disappears from the viewfinder. You may not record a clear picture depending on the condition of the tape.
  - Turn STANDBY down
  - Set the POWER switch to OFF
  - Eject a tape
  - Edit search
  - Fading out
  - Digital effect
  - Slow shutter
  - Title

Notas sobre la superposición
- No es posible emplear las funciones que se indican a continuación mientras se utiliza la función de superposición y viceversa:
  - Efecto digital
  - Obturación a baja velocidad
  - Titulación
- Es posible seleccionar la función de superposición durante la grabación.
- Si selecciona la función de superposición después de realizar las operaciones mencionadas a continuación, la videocámara memoriza la imagen de la cinta. Al memorizarse la imagen, el indicador OVERLAP parpadea rápidamente y la imagen que esté filmando desaparece del visor electrónico. Es posible que no pueda grabar imágenes nítidas dependiendo del estado de la cinta.
  - Girar STANDBY hacia abajo
  - Ajustar el interruptor POWER en OFF
  - Expulsar una cinta
  - Búsqueda de edición
  - Desaparición gradual
  - Efecto digital
  - Obturación a baja velocidad
  - Titulación

Wiping away a still picture (CCD-TR3300E only)

Desplazamiento en pantalla de imágenes fijas (sólo CCD-TR3300E)

When you switch from one scene to another, you can wipe away the still picture. With this function, the first still picture is wiped away from the centre to reveal the moving picture underneath.
You can hear the sound of the second scene as you start recording the second scene.

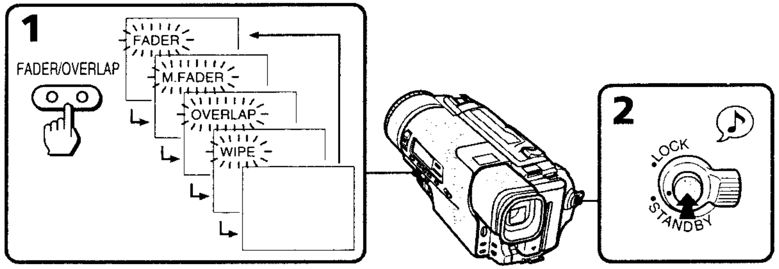
(1) While the camcorder is in Standby mode, press FADER/OVERLAP repeatedly so that the WIPE indicator appears in the viewfinder.

(2) Press START/STOP to record the next scene. The WIPE indicator disappears after wiping away.

Al pasar de una escena a otra, es posible desplazar la imagen fija. Con esta función, la primera imagen fija se desplaza a partir del centro para mostrar la imagen en movimiento que se encuentra debajo. Es posible escuchar el sonido de la segunda escena al iniciar la grabación de ésta.

(1) Mientras la videocámara se encuentra en modo de espera, pulse FADER/OVERLAP varias veces para que el indicador WIPE aparezca en el visor electrónico.

(2) Pulse START/STOP para grabar la siguiente escena. El indicador WIPE desaparecerá una vez realizado el proceso de desplazamiento.



Wiping away a still picture (CCD-TR3300E only)

Desplazamiento en pantalla de imágenes fijas (sólo CCD-TR3300E)

Notes on wipe

- You cannot use the following functions while using the wipe function. Also, while using the following functions, you cannot use the wipe function.
  - Digital effect
  - Slow shutter
  - Title
- You can select wipe during recording.
- When you select the wipe function after using the following operations, the camcorder memorizes the image on the tape. As the image is being memorized, the WIPE indicator flashes quickly, and the picture you are shooting disappears from the viewfinder.You may not record a clear picture depending on the condition of the tape.
  - Turn STANDBY down
  - Set the POWER switch to OFF
  - Eject a tape
  - Edit search
  - Fading out
  - Digital effect
  - Slow shutter
  - Title

Notas sobre el desplazamiento

- No es posible emplear las funciones que se indican a continuación mientras se emplea la función de desplazamiento y viceversa:
  - Efecto digital
  - Obturación a baja velocidad
  - Titulación
- Es posible seleccionar la función de desplazamiento durante la grabación.
- Si selecciona la función de desplazamiento después de realizar las operaciones mencionadas a continuación, la videocámara memoriza la imagen de la cinta. Al memorizarse la imagen, el indicador WIPE parpadea rápidamente y la imagen que esté filmando desaparece del visor electrónico. Es posible que no pueda grabar imágenes nítidas dependiendo del estado de la cinta.
  - Girar STANDBY hacia abajo
  - Ajustar el interruptor POWER en OFF
  - Expulsar una cinta
  - Búsqueda de edición
  - Desaparición gradual
  - Efecto digital
  - Obturación a baja velocidad
  - Titulación

Enjoying picture effect

Selecting picture effect

You can make pictures like those of television with the Picture Effect function.

[a]

[b]

[c]

[d]

[e]

[f]

MOSAIC [a]
The picture is mosaic.

SOLARIZE [b]
The light intensity is more clear, and the picture looks like an illustration.

B&W
The picture is monochrome (black and white).

SEPIA
The picture is sepia.

NEG. ART [c]
The picture is reversed.

PASTEL [d]
The contrast of the picture is emphasized, and the picture looks like an animated cartoon.

SLIM [e]
The picture expands vertically.

STRETCH [f]
The picture expands horizontally.

Uso del efecto de imagen

Selección del efecto de imagen

Con la función de efecto de imagen, es posible obtener imágenes como las de televisión.

MOSAIC [a]
La imagen aparece con efecto mosaico.

SOLARIZE [b]
La intensidad de iluminación es mayor y la imagen parece una ilustración.

B&W
La imagen es monocromo (blanco y negro).

SEPIA
La imagen aparece en sepia.

NEG. ART [c]
La imagen se invierte.

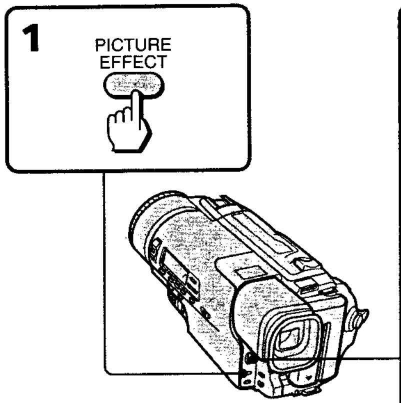
PASTEL [d]
El contraste de la imagen se enfatiza y dicha imagen parece un dibujo animado.

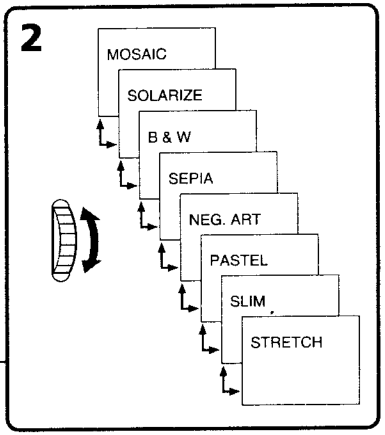
SLIM [e]
La imagen se expande verticalmente.

STRETCH [f]
La imagen se expande horizontalmente.

Using picture effect function

(1) Press PICTURE EFFECT.
(2) Turn the control dial to select the desired picture effect mode.





To turn off picture effect

Press PICTURE EFFECT to highlight the picture effect indicator, and press the button again. The indicator in the viewfinder goes out.

Note on the picture effect

When you turn the power off, the camcorder returns automatically to normal mode.

Uso del efecto de imagen

(1) Pulse PICTURE EFFECT.
(2) Gire el dial de control para seleccionar el modo de efecto de imagen que desee.

Para desactivar el efecto de imagen

Pulse PICTURE EFFECT para resaltar el indicador de efecto de imagen; a continuación, pulse el botón. El indicador del visor electrónico se apaga.

Nota sobre el efecto de imagen

Al desactivar la alimentación, la videocámara vuelve automáticamente al modo normal.

Recording a still picture (CCD-TR3300E only)

Grabación de imágenes fijas (sólo CCD-TR3300E)

You can record a still picture like those of still camera or shoot a moving picture with superimposing a still picture while the sound is recorded normally.

(1) Press DIGITAL EFFECT and turn the control dial to select the still indicator.

(2) Press the control dial to select still mode. The still indicator and still bars appear in the viewfinder, and still picture is stored in memory.

(3) Turn the control dial to adjust the rate of the still picture you want to superimpose on a moving picture. The rate of the still picture increases by the number of the still bars.

(4) Press START/STOP to start recording a moving picture with a still picture superimposed on. When you stop recording, press START/STOP again.

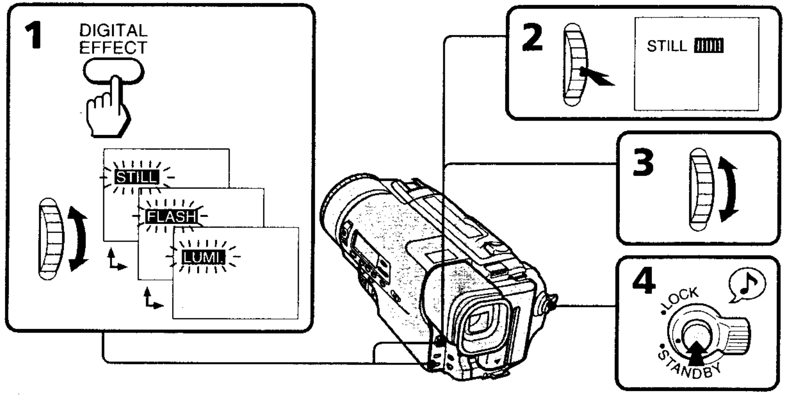
Es posible grabar imágenes fijas similares a las de cámara fija o filmar imágenes en movimiento con superposición de imágenes fijas mientras el sonido se graba con normalidad.

(1) Pulse DIGITAL EFFECT y gire el dial de control para seleccionar el indicador de imagen fija.

(2) Pulse el dial de control para seleccionar el modo de imagen fija. El indicador y barras de imagen fija aparecen en el visor electrónico mientras la imagen fija se almacena en la memoria.

(3) Gire el dial de control para ajustar la duración de la imagen fija que desee sobreponer sobre la imagen en movimiento. La duración de la imagen fija aumenta según el número de barras de imagen fija.

(4) Pulse START/STOP para iniciar la grabación de imágenes en movimiento con una imagen fija superpuesta. Si desea detener la grabación, vuelva a pulsar START/STOP.



To cancel still mode

Press DIGITAL EFFECT to highlight the still indicator, and press the button again. The still indicator in the viewfinder disappears.

Notes on still mode

- You cannot use the following functions while recording a still picture.
  - Fade-in or fade-out
  - Mosaic fader
  - Overlap
  - Wipe
  - Slow shutter
- When you turn the power off, still mode will be cancelled automatically.

Para cancelar el modo de imagen fija

Pulse DIGITAL EFFECT para resaltar el indicador de imagen fija; a continuación, pulse el botón. El indicador de imagen fija del visor electrónico desaparecerá.

Notas sobre el modo de imagen fija

- No es posible emplear las funciones que se relacionan a continuación mientras graba una imagen fija:
  - Aparición o desaparición gradual
  - Efecto mosaico
  - Superposición
  - Obturación a baja velocidad
  - Desplazamiento de imágenes
- Al desactivar la alimentación, el modo de imagen fija se cancelará automáticamente.

Recording still pictures successively (CCD-TR3300E only)

Grabación sucesiva de imágenes fijas (sólo CCD-TR3300E)

Using the Flash motion function, you can record still pictures successively at constant intervals. You can select intervals by adjusting the flash bars with the control dial. The sound is recorded normally during Flash motion.

(1) Press DIGITAL EFFECT and turn the control dial to select the flash motion indicator.

(2) Press the control dial to select flash mode. The flash motion indicator and flash motion bars appear in the viewfinder.

(3) Turn the control dial to adjust the interval of flash motion.

(4) Press START/STOP. Flash motion recording starts. To stop recording, press START/STOP again.

[a] normal recording
[b] flash motion recording

Mediante la función de movimiento por impulsos, es posible grabar imágenes fijas de forma sucesiva a intervalos constantes. Es posible seleccionar los intervalos ajustando las barras de movimiento por impulsos con el dial de control. El sonido se graba con normalidad durante el movimiento por impulsos.

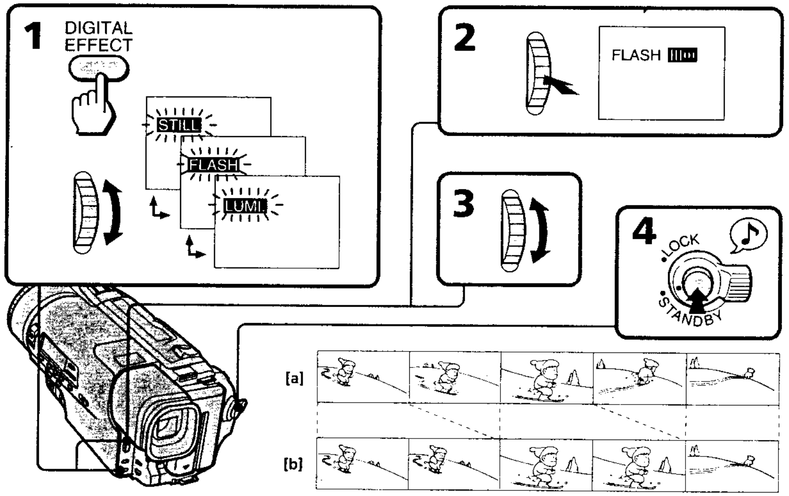
(1) Pulse DIGITAL EFFECT y gire el dial de control para seleccionar el indicador de movimiento por impulsos.

(2) Pulse el dial de control para seleccionar el modo de movimiento por impulsos. El indicador y barras de movimiento por impulsos aparecen en el visor electrónico.

(3) Gire el dial de control para ajustar el intervalo de movimiento por impulsos.

(4) Pulse START/STOP para iniciar la grabación con movimiento por impulsos. Para detener la grabación, vuelva a pulsar START/STOP.

[a] grabación normal
[b] grabación con movimiento por impulsos



To cancel the flash motion

Press DIGITAL EFFECT to highlight the flash motion indicator, and press the button again. The flash motion indicator in the viewfinder disappears.

Para cancelar el movimiento por impulsos

Pulse DIGITAL EFFECT para resaltar el indicador de movimiento por impulsos; a continuación, pulse el botón. El indicador de movimiento por impulsos desaparece del visor electrónico.

Notes on the flash motion

- The following functions does not work during the flash motion.
  - Fade-in or fade-out
  - Overlap
  - Mosaic fader
  - Wipe
  - Slow shutter
- When you turn the power off, flash motion mode will be cancelled automatically.

Notas sobre el movimiento por impulsos

- Las siguientes funciones no se activan durante el movimiento por impulsos:
  - Aparición y desaparición gradual
  - Superposición de imágenes
  - Efecto mosaico
  - Obturación a baja velocidad
  - Desplazamiento de imágenes
- Al desactivar la alimentación, el modo de movimiento por impulsos se cancelará automáticamente.

Superimposing a moving picture on a still picture (CCD-TR3300E only)

Superposición de imágenes en movimiento sobre imágenes fijas (sólo CCD-TR3300E)

Using the Luminancekey function, you can replace a brighter colour scheme portion of a still picture by a moving picture.
For example, you can superimpose the favorite scene on the background if you store the picture in memory as a still picture, such as a person in the bright background. The sound is recorded normally during Luminancekey function.

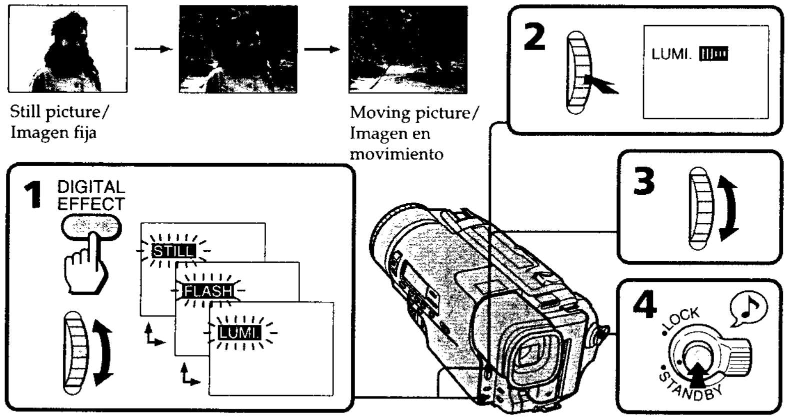
Mediante la función de luminancia, es posible reemplazar una parte de una imagen fija que presente colores con mayor brillo por una imagen en movimiento.
Por ejemplo, es posible superponer la escena que prefiera en el fondo si almacena la imagen en la memoria como imagen fija, por ejemplo una persona con fondo brillante. El sonido se graba con normalidad durante la función de luminancia.

Superimposing a still picture on a moving picture (CCD-TR3300E only)

Superposición de imágenes en movimiento sobre imágenes fijas (sólo CCD-TR3300E)

(1) Press DIGITAL EFFECT and turn the control dial to select the luminancekey indicator.
(2) Press the control dial to select luminancekey mode.
The luminancekey indicator and the luminancekey bars appear in the viewfinder, and still picture is stored in memory.
(3) Turn the control dial to adjust the colour scheme of the still picture.
The rate of the still picture increases by the number of the luminancekey bars.
(4) Press START/STOP. Luminancekey recording starts. To stop recording, press START/STOP again.

(1) Pulse DIGITAL EFFECT y gire el dial de control para seleccionar el indicador de luminancia.
(2) Pulse el dial de control para seleccionar el modo de luminancia.
El indicador y barras de luminancia aparecen en el visor electrónico y la imagen fija se almacena en la memoria.
(3) Gire el dial de control para ajustar el juego de colores de la imagen fija.
La duración de la imagen fija aumenta según el número de barras de luminancia.
(4) Pulse START/STOP para iniciar la grabación con movimiento por impulsos. Para detener la grabación, vuelva a pulsar START/STOP.



To cancel the luminancekey

Press DIGITAL EFFECT to highlight the luminancekey indicator, and press the button again. The luminancekey indicator in the viewfinder disappears.

Note on the luminancekey

The following functions does not work during luminancekey.

- Fade-in or fade-out
- Mosaic fader
- Overlap
- Wipe
- Slow shutter

Para cancelar la función de luminancia

Pulse DIGITAL EFFECT para resaltar el indicador de luminancia; a continuación, pulse el botón. El indicador de luminancia desaparece del visor electrónico.

Nota sobre la función de luminancia

Las siguientes funciones no se activan durante el modo de luminancia:

- Aparición o desaparición gradual
- Efecto mosaico
- Superposición
- Obturación a baja velocidad
- Desplazamiento de imágenes

Re-recording a picture in the middle of a recorded tape

Inserción de imágenes en el medio de una cinta grabada

You can insert a scene in the middle of a recorded tape by setting the starting and ending points. The previous recorded portion will be erased. If the RC time code appears in the viewfinder, set COUNTER to NORMAL in the menu system to display the tape counter.

(1) While the camcorder is in Standby mode, keep pressing the + (forward playback) or − (reverse playback) side of EDITSEARCH, and release the button where you want to end the insertion **[b]**. The camcorder enters Standby mode again.

(2) Press COUNTER RESET. The counter resets to zero.

(3) Keep pressing the − side of EDITSEARCH and release the button at the point where you want to start the insertion **[a]**.

(4) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.

(5) Press START/STOP to start recording. The recording stops automatically at the counter zero point.

Es posible insertar escenas en el medio de una cinta grabada mediante la definición de los puntos de inicio y final. De esta forma, la parte previamente grabada se borrará. Si el código de tiempos RC aparece en el visor electrónico, ajuste COUNTER en NORMAL en el sistema de menú para visualizar el contador de cinta.

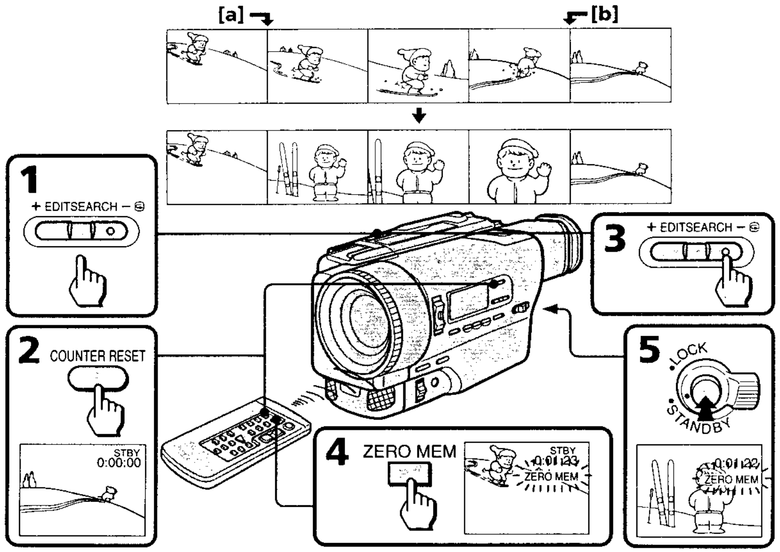
(1) Mientras la videocámara se encuentra en modo de espera, mantenga pulsado el lado + (reproducción progresiva) o − (reproducción regresiva) de EDITSEARCH, y suelte el botón donde desee finalizar la inserción **[b]**. La videocámara vuelve a introducir el modo de espera.

(2) Pulse COUNTER RESET para poner el contador a cero.

(3) Mantenga pulsado el lado − de EDITSEARCH y suelte el botón en el punto donde desee iniciar la inserción **[a]**.

(4) Pulse ZERO MEM en el mando a distancia. El indicador ZERO MEM parpadeará.

(5) Pulse START/STOP para iniciar la grabación. Esta se detendrá automáticamente cuando el contador alcance el punto cero.



To change the end point

Press ZERO MEM to erase the ZERO MEM indicator, then repeat steps 2 to 5.

Note on re-recording

The picture and the sound may be distorted at the end of the inserted portion when it is played back.

Para cambiar el punto final

Pulse ZERO MEM para que desaparezca el indicador ZERO MEM y, a continuación, repita los pasos 2 a 5.

Nota sobre la inserción de imágenes

Es posible que la imagen y el sonido se distorsionen al final de la parte insertada al reproducirse.

Using the wide mode function

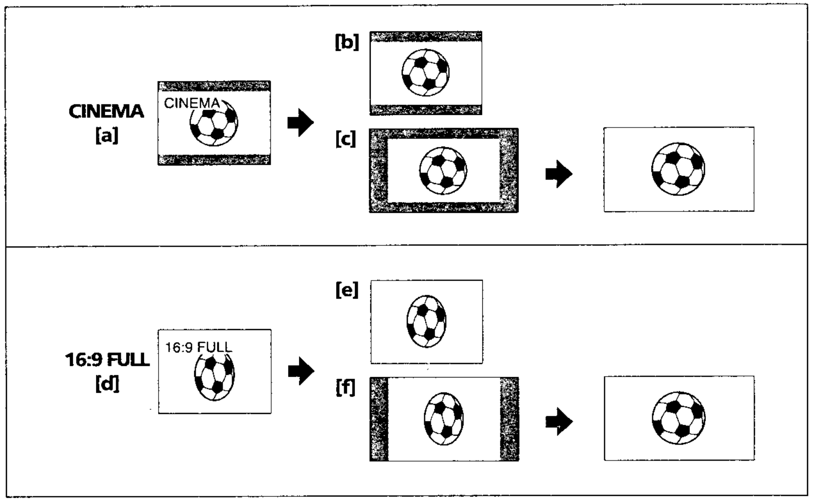
Uso de la función de modo panorámico

Selecting the desired mode

You can record a cinemalike picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9 FULL).

Selección del modo deseado

Es posible grabar imágenes similares a las de cine (CINEMA) o imágenes panorámicas de 16:9 para visualizarlas en un televisor de pantalla panorámica de 16:9 (16:9 FULL).



CINEMA

Black bands appear at the top and the bottom of the screen, and the viewfinder **[a]** and a normal TV screen **[b]** look wide. You can also watch the picture without black bands on a wide-screen TV **[c]**.

16:9 FULL

The picture in the viewfinder **[d]** or on a normal TV **[e]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[f]**.

CINEMA

Aparecen bandas negras en las partes superior e inferior de la pantalla, mientras el visor electrónico **[a]** y la pantalla normal del televisor **[b]** aparecen con forma panorámica. También es posible visualizar la imagen sin bandas negras en un televisor de pantalla panorámica **[c]**.

16:9 FULL

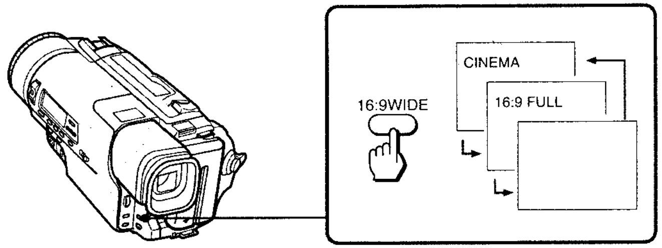
La imagen del visor electrónico **[d]** o de un televisor normal **[e]** se comprime horizontalmente. Es posible visualizar imágenes normales en un televisor de pantalla panorámica **[f]**.

Using the wide mode function

While the camcorder is in Standby mode, press 16:9WIDE repeatedly so that the desired mode indicator appears in the viewfinder.

Uso de la función de modo panorámico

Mientras la videocámara se encuentra en modo de espera, pulse 16:9WIDE varias veces para que el visor electrónico muestre el indicador del modo que desee.



To cancel wide mode

Press 16:9WIDE repeatedly until the wide mode indicator disappears.

To watch the tape recorded in wide mode

To watch the tape recorded in CINEMA mode, set the screen mode of the wide-screen TV to zoom mode. To watch the tape recorded in 16:9 FULL mode, set it to full mode. For details, refer to the instruction manual of your TV.
Note that the picture recorded in 16:9 FULL mode looks compressed on a normal TV.

Notes on wide mode

- When you record in 16:9 FULL mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.
- The wide mode is cancelled automatically 5 minutes after you remove the power source.

Para cancelar el modo panorámico

Pulse 16:9WIDE varias veces hasta que desaparezca el indicador de modo panorámico.

Para visualizar la cinta grabada en modo panorámico

Para visualizar la cinta grabada en modo CINEMA, ajuste el modo de pantalla del televisor de pantalla panorámica en modo de zoom. Para visualizar la cinta grabada en modo 16:9 FULL, realice el ajuste en modo total (FULL). Para obtener más información, consulte el manual de instrucciones del televisor. Observe que la imagen grabada en modo 16:9 FULL aparece comprimida en un televisor normal.

Notas sobre el modo panorámico

- Si graba en modo 16:9 FULL, el indicador de fecha u hora aparecerá ampliado en el televisor de pantalla panorámica.
- Si copia una cinta, ésta se copiará en el mismo modo de la grabación original.
- El modo panorámico se cancelará automáticamente 5 minutos después de retirar la fuente de alimentación.

Selecting the START/STOP mode

Your camcorder has two modes besides normal start/stop mode. These modes enable you to take a series of quick shots resulting in a lively video.

(1) Set the START/STOP MODE switch to the desired mode.
  ⊻ : Recording starts when you press START/STOP, and stops when you press it again (normal mode).
  ⊥ : The camcorder records only while you press down START/STOP.
  5 SEC: When you press START/STOP, the camcorder records for 5 seconds and then stops automatically.

(2) Turn STANDBY up and press START/STOP. Recording starts.

If you selected 5 SEC, five dots appear in the viewfinder. The dots disappear at a rate of one per second. When 5 seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.
If you select ⊥, the camcorder records as long as you hold down START/STOP.

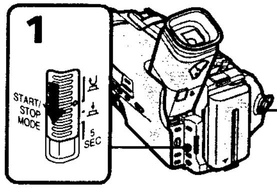
Selección del modo de inicio/parada START/STOP

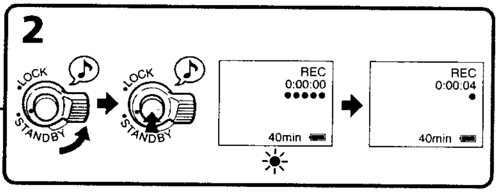
La videocámara dispone de dos modos además del normal de inicio y detención. Estos modos permiten realizar la filmación en varias tomas rápidas para obtener un vídeo con ritmo.

(1) Ajuste el interruptor START/STOP MODE en el modo que desee.
  ⊻ :La grabación se inicia al pulsar START/STOP, y se detiene si vuelve a pulsarlo (modo normal).
  ⊥ :La videocámara graba sólo mientras pulsa START/STOP.
  5 SEC: Si pulsa START/STOP, la videocámara graba durante 5 segundos y, a continuación, se detiene automáticamente.

(2) Gire STANDBY hacia arriba y pulse START/STOP. La grabación se iniciará.

Si ha seleccionado 5 SEC, aparecerán cinco puntos en el visor electrónico, que desaparecerán a un ritmo de uno por segundo. Si transcurren 5 segundos y desaparecen todos los puntos, la videocámara introducirá automáticamente el modo de espera.
Si selecciona ⊥, la videocámara grabará mientras mantenga pulsado START/STOP.


1
START/STOP MODE
5 SEC


2
LOCK
STANDBY
LOCK
STANDBY
REC
0:00:00
●●●●●
40min
REC
0:00:04
●
40min

To extend the recording time in 5 SEC mode

Press START/STOP again before all the dots disappear. Recording continues for about 5 seconds from the moment you pressed START/STOP.

To return to normal recording

Set the START/STOP MODE switch to ⊻. If you set the switch while recording, recording continues.

Note on 5 SEC recording and ⊥ mode

You cannot use FADER/OVERLAP (only for CCD-TR3300E) or FADER (only for CCD-TR2200E) if you select 5 SEC or ⊥.

Para aumentar el tiempo de grabación en modo 5 SEC

Vuelva a pulsar START/STOP antes de que desaparezcan todos los puntos. La grabación continuará durante 5 segundos aproximadamente a partir del momento en que pulsó START/STOP.

Para volver a la grabación normal

Ajuste el interruptor START/STOP MODE en ⊻. Si ajusta el interruptor durante la grabación, ésta continuará realizándose.

Nota sobre la grabación 5 SEC y el modo ⊥

Si selecciona 5 SEC o ⊥, no es posible emplear FADER/OVERLAP (sólo CCD-TR3300E) o FADER (sólo CCD-TR2200E).

Superimposing a title

You can select one of eight preset titles. You can also select the language, position, and colour of titles in the menu system.

Selecting the language

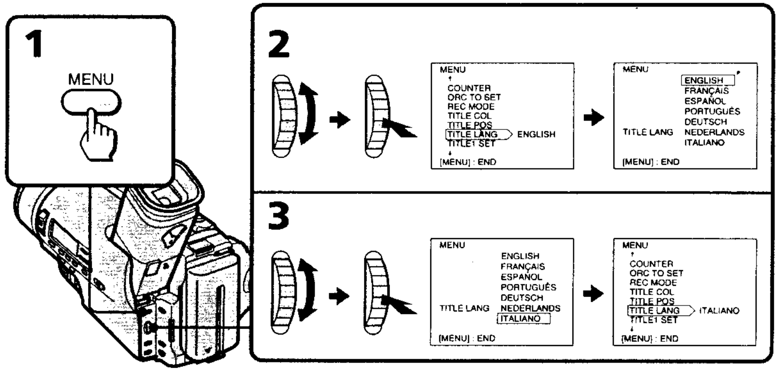
(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE LANG, then press the dial.
(3) Turn the control dial to select the desired language, then press the dial.
(4) Press MENU to erase the menu display.

Superposición de títulos

Es posible realizar la selección entre ocho títulos predefinidos. También es posible seleccionar el idioma, la posición y el color de los títulos en el sistema de menú.

Selección del idioma

(1) Mientras la videocámara se encuentra en modo de espera, pulse MENU para que aparezca el menú.
(2) Gire el dial de control para seleccionar TITLE LANG y, a continuación, pulse el dial.
(3) Gire el dial de control para seleccionar el idioma que desee y, a continuación, pulse el dial.
(4) Pulse MENU para que el menú desaparezca.


1
MENU
2
MENU
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG
ENGLISH
TITLE1 SET
[MENU] : END
MENU
TITLE LANG
ENGLISH
FRANÇAIS
ESPAÑOL
PORTUGUÊS
DEUTSCH
NEDERLANDS
ITALIANO
[MENU] : END
3
MENU
TITLE LANG
ENGLISH
FRANÇAIS
ESPAÑOL
PORTUGUÊS
DEUTSCH
NEDERLANDS
ITALIANO
[MENU] : END
MENU
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG
ITALIANO
TITLE1 SET
[MENU] : END

Using titles

To add the title from the beginning

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it flashes. When the desired title appears, wait for it to stop flashing.
Titles cycle as follows.
Original title 1 → Original title 2 → HELLO! → HAPPY BIRTHDAY → HAPPY HOLIDAYS → CONGRATURATIONS! → OUR SWEET BABY → WEDDING → VACATION → THE END
After "THE END" the title indicator goes off once and returns to Original title 1 again.
The titles are displayed in the language you selected in the menu system.

(2) Press START/STOP to start recording.

(3) When you want to stop recording the title, press TITLE again.

Note on titles

The contents and the order of titles are different depending on the laguages.

If you have not stored any original titles

The titles begin from "HELLO!".

Uso de los títulos

Para introducir el título desde el principio

(1) Mientras la videocámara se encuentra en modo de espera, pulse TITLE varias veces hasta que aparezca el título que desee.
Cada vez que aparezca un nuevo título, éste parpadeará.
Cuando aparezca el título que desee, espere hasta que deje de parpadear.
Los títulos aparecen cíclicamente de la siguiente forma:
Título original 1 → Título original 2 → HELLO! → HAPPY BIRTHDAY → HAPPY HOLIDAYS → CONGRATURATIONS! → OUR SWEET BABY → WEDDING → VACATION → THE END
Después de que el indicador del título "THE END" desaparezca, volverá a aparecer el título original 1.
Los títulos aparecerán en el idioma seleccionado en el sistema de menú.

(2) Pulse START/STOP para iniciar la grabación.

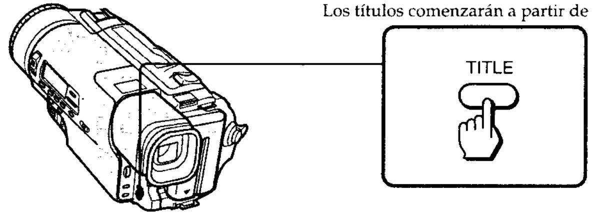
(3) Si desea detener la grabación del título, vuelva a pulsar TITLE.

Nota sobre los títulos

El contenido y el orden de los títulos difieren en función de los idiomas.

Si no ha almacenado ningún título original

Los títulos comenzarán a partir de "HELLO!".



To add the title while you are recording

(1) While in Standby mode, press TITLE repeatedly until the desired title appears to cycle through the titles.
Each time a new title appears, it flashes.

(2) When the desired title appears, wait for it to stop flashing, and press TITLE again to erase the title from the display.

(3) Start recording.

(4) When you reach the point where you want to add the title, press TITLE.

(5) When you want to stop recording the title, press TITLE again.

Para introducir el título durante la grabación

(1) Durante el modo de espera, pulse TITLE varias veces hasta que aparezca el título que desee.
Cada vez que aparezca un nuevo título, éste parpadeará.

(2) Cuando aparezca el título que desee, espere hasta que deje de parpadear; a continuación, vuelva a pulsar TITLE para que el título desaparezca.

(3) Inicie la grabación.

(4) Cuando llegue al punto donde desee introducir el título, pulse TITLE.

(5) Si desea detener la grabación del título, vuelva a pulsar TITLE.

Superimposing a title

Superposición de títulos

To select the colour of the title

(1) While in Standby mode, press MENU to display the menu.

(2) Turn the control dial to select TITLE COL and press the control dial to select it.
The colour menu appears.

(3) Turn the control dial to highlight a colour, and press the control dial to select it.

(4) Press MENU to erase the menu display.

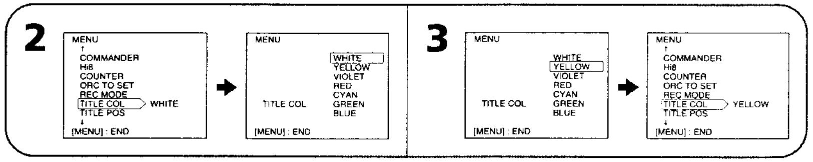
Para seleccionar el color del título

(1) Durante el modo de espera, pulse MENU para que aparezca el menú.

(2) Gire el dial de control para seleccionar TITLE COL y púlselo para seleccionarlo.
Aparece el menú de colores.

(3) Gire el dial de control para resaltar un color y, a continuación, púlselo para seleccionarlo.

(4) Pulse MENU para que el menú desaparezca.


2
MENU
COMMANDER
Hi8
COUNTER
ORC TO SET
REC MODE
TITLE COL
WHITE
TITLE POS
[MENU] : END
MENU
TITLE COL
WHITE
YELLOW
VIOLET
RED
CYAN
GREEN
BLUE
[MENU] : END
3
MENU
TITLE COL
WHITE
YELLOW
VIOLET
RED
CYAN
GREEN
BLUE
[MENU] : END
MENU
COMMANDER
Hi8
COUNTER
ORC TO SET
REC MODE
TITLE COL
YELLOW
TITLE POS
[MENU] : END

To select the position of the title

(1) While in Standby mode, press MENU to display the menu in the viewfinder.

(2) Turn the control dial to select TITLE POS and press the control dial to select it.
The position menu appears.

(3) Turn the control dial to highlight CENTER or BOTTOM, and press the control dial to select it.

(4) Press MENU to erase the menu display.

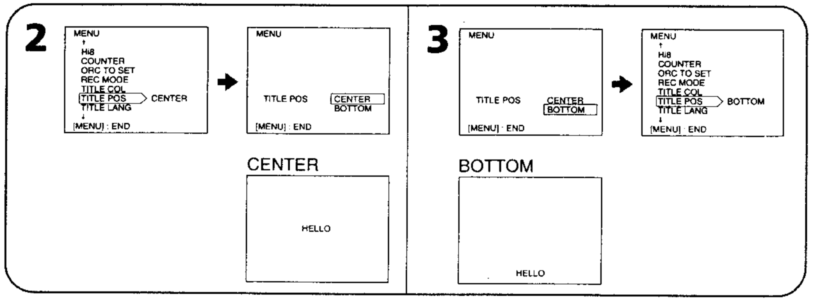
Para seleccionar la posición del título

(1) Durante el modo de espera, pulse MENU para que el visor electrónico muestre el menú.

(2) Gire el dial de control para seleccionar TITLE POS y púlselo para seleccionarlo.
Aparece el menú de posiciones.

(3) Gire el dial de control para resaltar CENTER o BOTTOM y, a continuación, púlselo para seleccionarlo.

(4) Pulse MENU para que desaparezca el menú.


2
MENU
Hi8
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
CENTER
TITLE LANG
[MENU] : END
MENU
TITLE POS
CENTER
BOTTOM
[MENU] : END
CENTER
HELLO
3
MENU
TITLE POS
CENTER
BOTTOM
[MENU] : END
MENU
Hi8
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
BOTTOM
TITLE LANG
[MENU] : END
BOTTOM
HELLO

Notes on selecting a title

- You cannot select a title while you are recording.
- You cannot select fade-in/fade-out while you are adding a title.
- You cannot record a title while you are recording with the date or time.

Notas sobre la selección de títulos

- No es posible seleccionar títulos durante la grabación.
- No es posible seleccionar la función de aparición y desaparición gradual mientras introduce un título.
- No es posible registrar títulos mientras graba con la fecha o la hora.

Making your own original titles

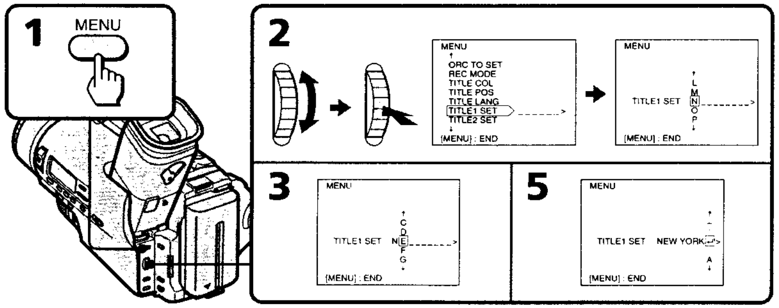
Creación de títulos

You can make up to two titles and store them in the camcorder.
Eject the cassette before you begin. Your title can have up to 22 letters.

(1) While in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE 1 SET or TITLE 2 SET, then press the dial.
(3) Turn the control dial to highlight a letter, and press the control dial to select it.
(4) Repeat step 3 until you finish the title.
(5) When you are finished, turn the control dial to highlight ↵ and press the control dial to select it.
The title is stored.
(6) Press MENU to erase the menu display.

Es posible crear un máximo de dos títulos y almacenarlos en la videocámara. Expulse el videocassette antes de comenzar. El título puede componerse de un máximo de 22 letras.

(1) Durante el modo de espera, pulse MENU para que aparezca el menú.
(2) Gire el dial de control para seleccionar TITLE 1 SET o TITLE 2 SET y, a continuación, púlselo.
(3) Gire el dial de control para resaltar una letra y, a continuación, púlselo para seleccionarla.
(4) Repita el paso 3 hasta completar el título.
(5) Una vez finalizado el proceso, gire el dial de control para resaltar ↵ y púlselo para seleccionarlo.
El título queda almacenado.
(6) Pulse MENU para que el menú desaparezca.



To edit a title you have stored

In step 2, select TITLE 1 SET or TITLE 2 SET, whichever title you want to edit is stored in. Then change the title.

Instead of selecting ↵ in step 5 to store the title

You can do one of the following:

- Enter 22 letters.
- Press MENU.

If you do nothing more than 5 minutes

The power goes off automatically. Turn STANDBY down once, turn it again up and proceed from step 3.

Para editar títulos almacenados

En el paso 2, seleccione TITLE 1 SET o TITLE 2 SET en función de donde se encuentre almacenado el título que desee editar. A continuación, cámbielo.

En lugar de seleccionar ↵ en el paso 5 para almacenar el título

Es posible realizar una de las siguientes operaciones:

- Introducir 22 letras.
- Pulsar MENU.

Si no realiza ninguna operación en un período superior a 5 minutos

La alimentación se desactivará automáticamente. Gire STANDBY hacia abajo una vez, vuelva a girarlo hacia arriba y comience el procedimiento a partir del paso 3.

To delete a title

At the leftmost character position, select ↵ and press TITLE. Do not erase the title by selecting empty spaces. If you do so, a title full of empty spaces is stored.

Para eliminar títulos

Seleccione ↵ y pulse TITLE en la posición de caracteres del extremo izquierdo. No borre el título mediante la selección de espacios vacíos, ya que si lo hace se almacenará un título lleno de espacios vacíos.

Releasing the STEADY SHOT function

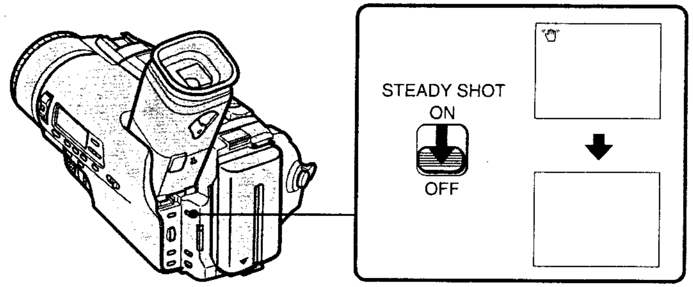
Desactivación de la función STEADY SHOT

When you shoot, the 'ꝏ' indicator appears in the viewfinder. This indicates that the Steady Shot function is working and the camcorder compensates for camera-shake.

Set STEADY SHOT to OFF.

Durante la filmación, el indicador 'ꝏ' aparece en el visor electrónico para indicar que la función de estabilización de imagen (Steady Shot) se encuentra activada, por la que la videocámara compensa las sacudidas de la cámara.

Ajuste STEADY SHOT en OFF.



To activate the Steady Shot function again

Set STEADY SHOT to ON.

Note on the Steady Shot function

The Steady Shot function will not correct excessive camera-shake.

Para volver a activar la función Steady Shot

Ajuste STEADY SHOT en ON.

Nota sobre la función Steady Shot

Esta función no corregirá sacudidas excesivas de la cámara.

Checking the tape condition before recording (ORC)

Comprobación del estado de la cinta antes de la grabación (ORC)

Use this feature to check the tape condition before recording, so that you can get the best possible picture.

(1) While in Standby mode, press MENU to display the menu.

(2) Turn the control dial to highlight ORC TO SET and press the control dial to select it. "START/STOP KEY" appears.

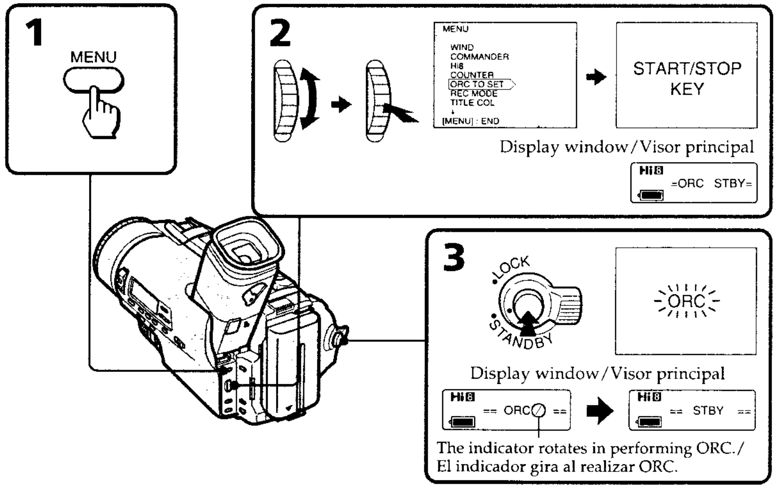
(3) Press START/STOP.
The camcorder takes about 5 seconds to check the condition of the tape head and the cassette.

Emplee esta función para comprobar el estado de la cinta antes de la grabación con el fin de obtener la mejor calidad de imagen posible.

(1) Durante el modo de espera, pulse MENU para que aparezca el menú.

(2) Gire el dial de control para resaltar ORC TO SET y, a continuación, púlselo para seleccionarlo. Aparece "START/STOP KEY".

(3) Pulse START/STOP.
La videocámara tardará unos 5 segundos en comprobar el estado del cabezal de cinta y del videocassette.



Display window/Visor principal

Display window/Visor principal

The indicator rotates in performing ORC./
El indicador gira al realizar ORC.

Each time you insert the cassette
Perform the above procedures.

To see if you have performed ORC
Perform steps 1 and 2 above. If "ORC ON" is displayed, the tape condition has been checked.

When the tab on the cassette exposes the red mark
You can not use ORC.

When you check the tape condition
A 0.1-second unrecorded space is made on the tape. However, if you start recording immediately, the unrecorded portion disappears.

Cada vez que inserte el videocassette
Realice los procedimientos descritos anteriormente.

Para comprobar si ha realizado la función ORC
Efectúe los pasos 1 y 2 anteriores. Si aparece la indicación "ORC ON" significa que se ha comprobado el estado de la cinta.

Si la lengüeta del videocassette muestra la marca roja
No será posible emplear la función ORC.

Al comprobar el estado de la cinta
Se registrará en la cinta un espacio sin grabación de 0,1 segundos. No obstante, si inicia inmediatamente la grabación, la parte sin grabación desaparecerá.

English

Selecting automatic/manual adjustment modes

The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstances, manual adjustment is better for creative recording.
You can adjust focus, aperture, shutter speed, gain, and white balance automatically or manually. Also, you can use the PROGRAM AE function in particular circumstances, and adjust the brightness of the picture with the AE shift function.
Here's the overview of each manual adjustment. See the following pages for detailed information.

To focus manually

Set FOCUS to MANUAL. You can adjust the focus regardless of the position of the AUTO LOCK/HOLD switch. When you want to focus automatically, set FOCUS to AUTO.

To manually adjust aperture, shutter speed, gain, and white balance

Set AUTO LOCK/HOLD to the centre position. You can adjust each item independently. When you want to adjust each item automatically, set AUTO LOCK/HOLD to AUTO LOCK.

To manually adjust the brightness

Use AE SHIFT in the menu system.

Note on the previous settings
Once you adjust the settings manually, they are stored in memory in the following cases as long as the lithium battery is in place.
- when you return to automatic adjustment mode.
- when you set the POWER switch to OFF.
- in five minutes after you remove the power source as long as the lithium battery is installed in the camcorder.

		PROGRAM AE			
	Automatic adjustment	**Aperture priority mode**	**Shutter priority mode**	**Twilight mode**	**Manual adjustment**
Aperture	Automatic	Manual	Automatically adjusted according to the shutter speed	Automatic	Automatic or manual
Shutter speed	1/50	Automatically adjusted according to the aperture	Manual	1/50	1/50 or manual
Gain	Automatic	Automatic	Automatic	Automatic	Automatic or manual
White balance	Automatic	Changes each time you turn the control dial after pressing WHT BAL Automatic (no indication) or ◣ (one push white balance) ⟷ ☀ (outdoor) ⟷ 💡 (indoor)			
AE shift*	Effective	Effective	Effective	Effective	Effective
Focus	Automatic or manual according to the position of the FOCUS switch				

* You cannot change AE shift while adjusting the aperture manually.

Español

Selección del modo de ajuste manual o automático

Con las funciones automáticas de la videocámara no es necesario preocuparse por las operaciones en la mayoría de las condiciones de filmación. No obstante, en algunas circunstancias resulta más útil emplear el ajuste manual para realizar grabaciones creativas.
Es posible ajustar de forma manual o automática el enfoque, la apertura, la velocidad de obturación, la ganancia y el balance de blancos. Asimismo, puede emplear la función PROGRAM AE en determinadas circunstancias y ajustar el brillo de la imagen con la función de desplazamiento AE.
A continuación, se proporciona una descripción general de cada ajuste manual. Para obtener información detallada, consulte las páginas siguientes.

Para realizar el enfoque manualmente

Ajuste FOCUS en MANUAL. Es posible ajustar el enfoque independientemente de la posición del interruptor AUTO LOCK/HOLD. Si desea realizar el enfoque automáticamente, ajuste FOCUS en AUTO.

Para ajustar manualmente la apertura, la velocidad de obturación, la ganancia y el balance de blancos

Ajuste AUTO LOCK/HOLD en la posición central. Es posible ajustar cada elemento por separado. Si desea ajustar automáticamente cada elemento, ajuste AUTO LOCK/HOLD en AUTO LOCK.

Para ajustar el brillo manualmente

Emplee la función AE SHIFT en el sistema de menú.

Nota sobre los ajustes anteriores

Una vez realizados los ajustes manualmente, éstos quedan almacenados en la memoria en los siguientes casos siempre que no retire la pila de litio:
- si vuelve al modo de ajuste automático.
- si ajusta el interruptor POWER en OFF.
- cinco minutos después de retirar la fuente de alimentación siempre que la pila de litio esté instalada en la videocámara.

	Ajuste automático	PROGRAM AE			Ajuste manual
		Modo de prioridad de apertura	Modo de prioridad de obturación	Modo crepuscular	
Apertura	Automático	Manual	Ajustado automáticamente en función de la velocidad de obturación	Automático	Automático o manual
Velocidad de obturación	1/50	Ajustado automáticamente en función de la apertura	Manual	1/50	1/50 o manual
Ganancia	Automático	Automático	Automático	Automático	Automático o manual
Balance de blancos	Automático	Cambia cada vez que gire el dial de control después de pulsar WHT BAL Automático (sin indicación) o ⛰ (balance de blancos con un solo movimiento) ←→ ☀ (exteriores) ←→ 💡 (interiores)			
Desplazamiento AE*	Efectivo	Efectivo	Efectivo	Efectivo	Efectivo
Enfoque	Automático o manual en función de la posición del interruptor FOCUS				

* No es posible modificar el desplazamiento AE durante el ajuste manual de la apertura.

Focusing manually

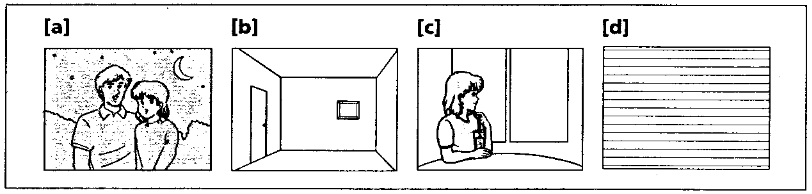
Enfoque manual

When to use manual focus

In the following cases you should obtain better results by adjusting the focus manually.

Cuándo emplear el enfoque manual

En los siguientes casos se obtienen mejores resultados mediante el ajuste manual del enfoque.



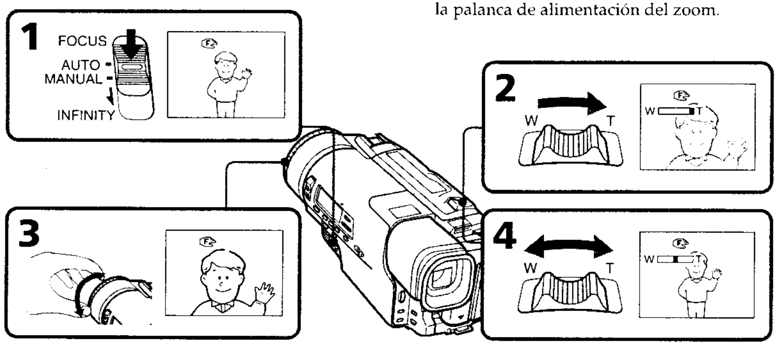
- Insufficient light **[a]**
- Subjects with little contrast – walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting the light
- Shooting a stationary subject when using a tripod

- Iluminación insuficiente **[a]**
- Objetos con poco contraste – paredes, el cielo, etc. **[b]**
- Demasiado brillo detrás del objeto **[c]**
- Rayas horizontales **[d]**
- Objetos situados detrás de vidrios con escarcha
- Objetos situados detrás de redes, etc.
- Objetos brillantes o que reflejan luz
- Filmación de objetos sin movimiento con un trípode

Focusing manually

When focusing manually, first focus in telephoto before recording, and then reset the shot length.

(1) Set FOCUS to MANUAL. The Ⓕ indicator appears in the viewfinder.
(2) Move the power zoom lever to the "T" side until the lever reaches the end.
(3) Turn the focus ring to achieve a sharp focus. Be sure to not touch the built-in microphone when you turn the focus ring.
(4) Set the desired shot length using the power zoom lever.



To return to autofocus mode

Set FOCUS to AUTO. The Ⓕ indicator in the viewfinder disappears.

Shooting in relatively dark places
Shoot at wide-angle after focusing in the telephoto position.

Note on the focus ring
The focus ring does not have a stop position.

To shoot with autofocus momentarily

When you want to switch to autofocus momentarily while recording in manual focus mode, press PUSH AUTO down. Autofocus functions while PUSH AUTO is held down. when it is released, manual focus mode will be resumed.

Enfoque manual

Al enfocar manualmente, enfoque en primer lugar en la posición de telefoto antes de la grabación y, a continuación, ajuste la distancia de filmación.

(1) Ajuste FOCUS en MANUAL. El indicador Ⓕ aparece en el visor electrónico.
(2) Desplace la palanca de alimentación del zoom hacia el lado "T" hasta que dicha palanca llegue al final.
(3) Gire el anillo de enfoque para obtener un enfoque nítido. Asegúrese de no tocar el micrófono incorporado al girar el anillo.
(4) Ajuste la distancia de filmación que desee con la palanca de alimentación del zoom.

Para volver al modo de enfoque automático

Ajuste FOCUS en AUTO. El indicador Ⓕ desaparece del visor electrónico.

Filmación en lugares relativamente oscuros
Realice la filmación en gran angular después de enfocar en la posición de telefoto.

Nota sobre el anillo de enfoque
Este anillo no dispone de posición de parada.

Para filmar momentáneamente con el enfoque automático

Si desea cambiar momentáneamente al enfoque automático durante la grabación en el modo de enfoque manual, pulse PUSH AUTO. El modo de enfoque automático permanece activado mientras mantiene pulsado PUSH AUTO. Si suelta este botón, se reanudará el modo de enfoque manual.

To record a very distant subject

Push FOCUS down to INFINITY. The lens focuses on the most distant subject while FOCUS is held down.
When it is released, manual focus mode is resumed. Use this function when shooting through a window or a screen, to focus on a more distant subject.

Note on manual focusing
The Ⓕ indicator will change to the followings:
▲: When recording an infinitely distant subject.
●: When there is something too close to focus on.

Para grabar objetos muy distantes

Pulse FOCUS hasta alcanzar la posición INFINITY. El objetivo enfoca los objetos más distantes mientras mantiene pulsado FOCUS.
Al soltarlo, se reanuda el modo de enfoque manual. Emplee esta función al filmar a través de una ventana o una pantalla con el fin de enfocar objetos más distantes.

Nota sobre el enfoque manual
El indicador Ⓕ cambiará en los siguientes casos:
▲: Al grabar objetos infinitamente distantes.
●: Si existe algún objeto demasiado cerca enfocado.

Using the PROGRAM AE function

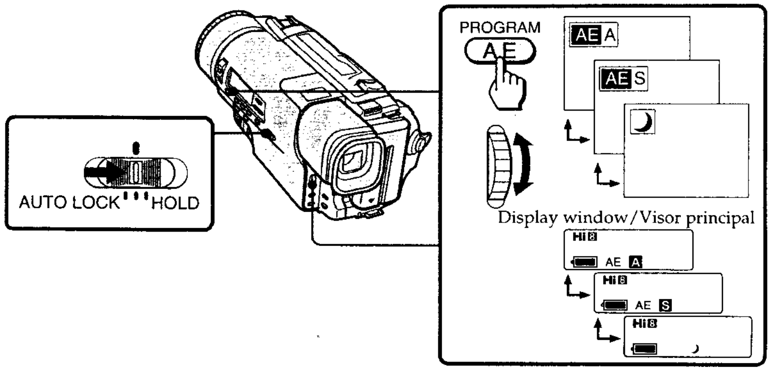
Uso de la función PROGRAM AE

About the PROGRAM AE function

You can select from three PROGRAM AE modes to fit the shooting situation. Set AUTO LOCK/HOLD to the centre position. Press PROGRAM AE, then select the desired mode by turning the control dial. Each time you turn the dial, the indicator in the viewfinder changes: AE A (Aperture Priority) ←→ AE S (Shutter Priority) ←→ ☽ (Twilight).

Acerca de la función PROGRAM AE

Es posible seleccionar el modo PROGRAM AE, de los tres existentes, que mejor se adapte a la situación de filmación. Ajuste AUTO LOCK/HOLD en la posición central. Pulse PROGRAM AE y, a continuación, seleccione el modo que desee girando el dial de control. Cada vez que gire el dial, el indicador del visor electrónico cambia de la siguiente forma: AE A (Prioridad de apertura) ←→ AE S (Prioridad de obturación) ←→ ☽ (Modo crepuscular).



Note on recording in PROGRAM AE
We recommend that you adjust the focus and white balance manually.

Nota sobre la grabación con la función PROGRAM AE
Se recomienda ajustar manualmente el enfoque y el balance de blancos.

Using the aperture priority mode

You can select the aperture to determine the desired depth of focus field. The shutter speed is automatically set (between 1/50 and 1/1750) according to the aperture value to maintain appropriate exposure.

(1) Set AUTO LOCK/HOLD to the centre position.

(2) Press PROGRAM AE so that the indicator appears in the viewfinder.

(3) Turn the control dial to select AE A, then press the dial.

(4) Turn the control dial to select the desired aperture value. You can select from the following 15 values: F1.6, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9. 6, F11, F14, F16, F19. For a smaller aperture, select a higher value.

Uso del modo de prioridad de apertura

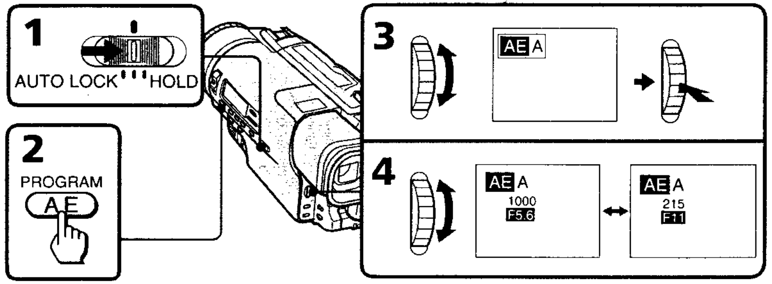
Es posible seleccionar la apertura para determinar la profundidad que desee correspondiente al campo de enfoque. La velocidad de obturación se ajusta automáticamente (entre 1/50 y 1/1750) en función del valor de apertura para mantener la exposición adecuada.

(1) Ajuste AUTO LOCK/HOLD en la posición central.

(2) Pulse PROGRAM AE para que el indicador aparezca en el visor electrónico.

(3) Gire el dial de control para seleccionar AE A y, a continuación, púlselo.

(4) Gire el dial de control para seleccionar el valor de apertura que desee. Es posible realizar la selección de alguno de los 15 valores siguientes: F1.6, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9. 6, F11, F14, F16, F19. Para obtener una apertura menor, seleccione un valor mayor.



To return to automatic adjustment mode

Set AUTO LOCK/HOLD to AUTO LOCK, or press PROGRAM AE so that no indicator appears in the viewfinder.

About the depth of focus field

The depth of focus field is the in-focus range measured from the distance behind a subject to the distance in front. The depth of focus field can vary with the aperture value and the focal length. Lowering the F value (larger aperture) reduces the depth of focus field. Raising the F value (smaller aperture) provides a larger depth of focus field. Zooming in telephoto position offers a smaller depth of focus field while the depth of focus field in wide-angle position is greater.

Para volver al modo de ajuste automático

Ajuste AUTO LOCK/HOLD en AUTO LOCK, o pulse PROGRAM AE hasta que el visor electrónico no muestre ningún indicador.

Acerca de la profundidad del campo de enfoque

La profundidad del campo de enfoque es el área que se encuentra dentro del enfoque, medida a partir de la distancia existente detrás y delante del objeto. Esta profundidad puede variar con el valor de apertura y la distancia focal. Si disminuye el valor F (apertura mayor), la profundidad del campo de enfoque se reduce, mientras que si aumenta (apertura menor), la profundidad del campo de enfoque se amplía. El uso del zoom en la posición de telefoto proporciona una menor profundidad del campo de enfoque, mientras que dicha profundidad será mayor en la posición de gran angular.

Using the shutter priority mode

You can select the shutter speed between 1/50 and 1/10000. When you select a faster shutter speed, movement appears clearer with less shaking. The aperture value is automatically adjusted according to the selected shutter speed to maintain appropriate exposure. This mode is most effective when you shoot the picture with high-speed movement.
Note that the shutter speed is indicated in the viewfinder as, for example, "100" for 1/100 shutter speed.

(1) Set AUTO LOCK/HOLD to the centre position.

(2) Press PROGRAM AE so that the indicator appears in the viewfinder.

(3) Turn the control dial to select AE S, then press the dial.

(4) Turn the control dial to select the desired shutter speed. You can select from the following 16 speeds: 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000. For a faster shutter speed, select a larger value indicator in the viewfinder.

Uso del modo de prioridad de obturación

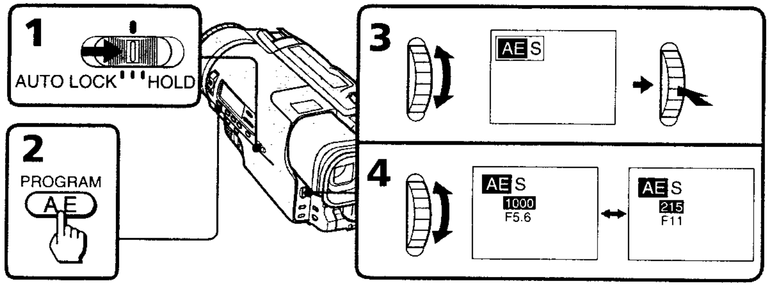
Es posible seleccionar la velocidad de obturación entre 1/50 y 1/10000. Si selecciona una velocidad de obturación mayor, el movimiento aparece con más nitidez y con menos vibración. El valor de apertura se ajusta automáticamente según la velocidad de obturación seleccionada para mantener la exposición adecuada. Este modo resulta más efectivo cuando filme imágenes con movimientos a alta velocidad.
Observe que la velocidad de obturación aparece indicada en el visor electrónico, como por ejemplo "100" para la velocidad de obturación de 1/100.

(1) Ajuste AUTO LOCK/HOLD en la posición central.

(2) Pulse PROGRAM AE para que el indicador aparezca en el visor electrónico.

(3) Gire el dial de control para seleccionar AE S y, a continuación, púlselo.

(4) Gire el dial de control para seleccionar la velocidad de obturación que desee. Es posible realizar la selección de alguna de las 16 velocidades de obturación siguientes: 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000. Para obtener una velocidad de obturación mayor, seleccione un indicador del visor electrónico de valor mayor.



To return to automatic adjustment mode

Set AUTO LOCK/HOLD to AUTO LOCK, or press PROGRAM AE so that no indicator appears in the viewfinder.

Para volver al modo de ajuste automático

Ajuste AUTO LOCK/HOLD en AUTO LOCK, o pulse PROGRAM AE hasta que el visor electrónico no muestre ningún indicador.

When the aperture value is automatically adjusted to F1.6
We recommend shooting in sunlight or using a video light (not supplied).

When shooting a very bright subject
A vertical band (smear) may appear on the screen if the shutter speed is set too high.

To select the best shutter speed

Subject	Shutter speed
• A golf swing or tennis match in fine weather (to view the hit ball clearly in still picture mode, set to 1/1000 to 1/3500)	1/600 – 1/10000
• A landscape shot from a moving car • A moving roller coaster in overcast days • An athletic scene, marathon, etc.	1/120 – 1/425
• Indoor sports • Replacement for the ND2 filter (to have the exposure) • Recording pictures with less flicker under a fluorescent lamp	1/100
• In sunny weather (to avoid an out-of-focus picture due to a small aperture)	1/75

Si el valor de apertura se ajusta automáticamente en F1.6
Se recomienda filmar con luz solar o con una lámpara de vídeo (no suministrada).

Cuando filme objetos muy brillantes
Es posible que aparezca una banda vertical (mancha) en la pantalla si ha ajustado la velocidad de obturación en valores demasiado altos.

Para seleccionar la velocidad de obturación más adecuada

Objeto	Velocidad de obturación
• Un golpe de golf o un partido de tenis con buenas condiciones atmosféricas (para visualizar con nitidez el golpe de la pelota en el modo de imagen fija, ajuste una velocidad comprendida entre 1/1000 y 1/3500)	1/600 – 1/10000
• La filmación de un paisaje desde un automóvil en movimiento • Una montaña rusa en movimiento en días descubiertos • Una escena de atletismo, maratón, etc.	1/120 – 1/425
• Deportes en interiores • Sustitución para el filtro ND2 (para obtener la exposición) • Grabación de imágenes con menor parpadeo bajo una lámpara fluorescente	1/100
• Con tiempo soleado (para evitar el desenfoque de la imagen debido a una pequeña apertura)	1/75

Using the PROGRAM AE Function

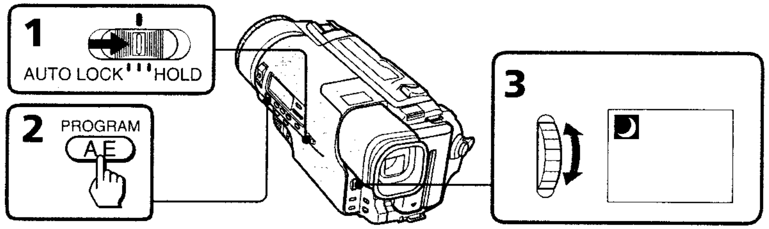
Uso de la función PROGRAM AE

Using the twilight mode

You can record a bright subject in a dark place without ruining the atmosphere. The aperture is automatically adjusted to maintain the appropriate exposure. The shutter speed is fixed at 1/50. This mode is effective when you record night views, neon signs or fireworks.
(1) Set AUTO LOCK/HOLD to the centre position.
(2) Press PROGRAM AE so that the indicator appears in the viewfinder.
(3) Turn the control dial to select ☽ indicator.

Uso del modo crepuscular

Es posible grabar objetos brillantes en lugares oscuros sin estropear el ambiente. La apertura se ajusta automáticamente para mantener la exposición adecuada, mientras que la velocidad de obturación se fija en 1/50. Este modo resulta efectivo al grabar vistas nocturnas, letreros de neón o fuegos artificiales.
(1) Ajuste AUTO LOCK/HOLD en la posición central.
(2) Pulse PROGRAM AE para que el indicador aparezca en el visor electrónico.
(3) Gire el dial de control para seleccionar el indicador ☽.



To return to automatic adjustment mode
Set AUTO LOCK/HOLD to AUTO LOCK, or press PROGRAM AE so that no indicator appears in the viewfinder.

When shooting an excessively bright subject
Autofocus may not work effectively. Focus manually then.

Para volver al modo de ajuste automático
Ajuste AUTO LOCK/HOLD en AUTO LOCK, o pulse PROGRAM AE para que el visor electrónico no muestre ningún indicador.

Al filmar objetos excesivamente brillantes
Es posible que el modo de enfoque automático no resulte efectivo. En este caso, realice el enfoque manualmente.

Using manual mode

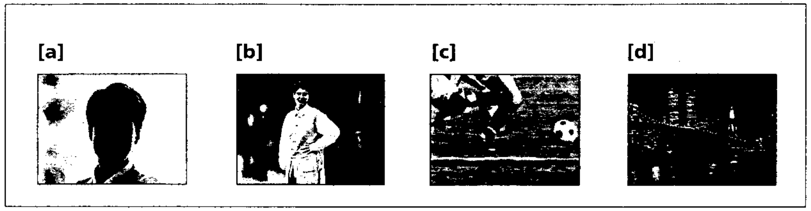
The manual mode features an advanced recording technique by controlling the exposure with a combination of adjustments of the aperture value, shutter speed and gain level.

Uso del modo manual

El modo manual ofrece una avanzada técnica de grabación, que permite controlar la exposición con una combinación de ajustes del valor de apertura, velocidad de obturación y nivel de ganancia.

When to use manual mode

Cuándo emplear el modo manual



- When the background is too bright (backlighting) **[a]**, open the aperture (lower F value).
- When the subject is bright with dark background **[b]**, close the aperture (higher F value).
- When the subject moves at high speed **[c]**, set the shutter speed value faster.
- When a dark scene is shot overexposed **[d]**, lower the gain.

- Si el fondo es demasiado brillante (iluminación a contraluz) **[a]**, abra la apertura (valor F más bajo).
- Si el objeto presenta brillo con un fondo oscuro **[b]**, cierre la apertura (valor F más alto).
- Si el objeto se mueve a alta velocidad **[c]**, ajuste la velocidad de obturación en un valor mayor.
- Si filma una escena oscura con exceso de exposición **[d]**, disminuya la ganancia.

Item		Selectable steps	Variation of exposure	Brighter ↕ Darker
Aperture		16 steps	0.5 EV	F1.6 ↕ F19 (CLOSE)
Shutter speed		Fast: 16 steps	0.5 EV	1/50 ↕ 1/10000
	CCD-TR3300E only	Slow: 4 steps	1.0 EV	1/3 ↕ 1/25
Gain		8 steps	0.5 EV	+18 dB ↕ –3 dB

Elemento		Intervalos seleccionables	Variación de exposición	Más brillante ↕ Más oscuro
Apertura		16 intervalos	0,5 EV	F1.6 ↕ F19 (CLOSE)
Velocidad de obturación		Rápido: 16 intervalos	0,5 EV	1/50 ↕ 1/10000
	sólo CCD-TR3300E	Lento: 4 intervalos	1,0 EV	1/3 ↕ 1/25
Ganancia		8 intervalos	0,5 EV	+18 dB ↕ –3 dB

Note on recording in manual mode
We recommend that you adjust the focus and white balance manually.

Nota sobre la grabación en modo manual
Se recomienda ajustar manualmente el enfoque y el balance de blancos.

Shooting in manual mode

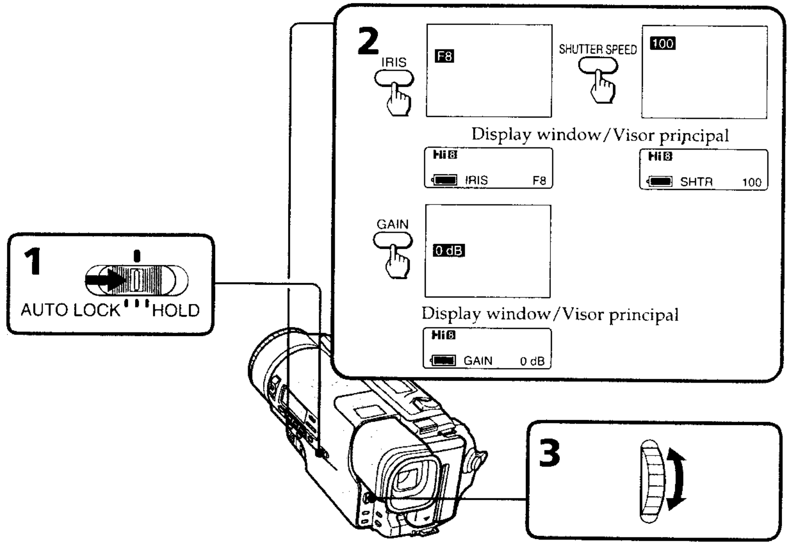
In manual mode, you can adjust the aperture, shutter speed and gain independently. Use the graph on page 71 for your reference to set a value of each item.

(1) Set AUTO LOCK/HOLD to the centre position.
(2) Press the button of the item you want to adjust (IRIS, SHUTTER SPEED, or GAIN).
(3) Turn the control dial to adjust the selected item.

Filmación en modo manual

En este modo, es posible ajustar por separado la apertura, la velocidad de obturación y la ganancia. Para ajustar el valor de cada elemento, emplee como referencia el gráfico de la página 71.

(1) Ajuste AUTO LOCK/HOLD en la posición central.
(2) Pulse el botón del elemento que desee ajustar (IRIS, SHUTTER SPEED o GAIN).
(3) Gire el dial de control para ajustar el elemento seleccionado.



Adjustment of each item

To adjust the aperture

You can select the aperture from the following 16 values: F1.6, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9.6, F11, F14, F16, F19, CLOSE. To open the aperture (larger aperture), select a lower value.

Ajuste de cada elemento

Para ajustar la apertura

Es posible seleccionar la apertura entre los 16 valores siguientes: F1.6, F2, F2.4, F2.8, F3.4, F4, F4.8, F5.6, F6.8, F8, F9.6, F11, F14, F16, F19, CLOSE. Para abrir la apertura (apertura mayor), seleccione un valor inferior.

To adjust the shutter speed

You can select the shutter speed from the following 20 (CCD-TR3300E), or 16 (CCD-TR2200E) speeds:

— CCD-TR3300E:
1/3, 1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000.
— CCD-TR2200E:
1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000.

To increase the shutter speed, select a smaller setting (larger value indicator in the viewfinder).

To adjust the gain

You can select the gain from the following 8 levels: -3 dB, 0 dB, +3 dB, +6 dB, +9 dB, +12 dB, +15 dB, +18 dB. To increase the gain to brighten the picture, select a higher level.
If you adjusted the aperture manually prior to adjusting the gain, the gain level is set according to the aperture setting.

To change the setting

Press the button of the item you want to change so that the selected item indicator highlights in the viewfinder. Turn the control dial to change to the desired setting.

To lock the manual settings

After adjusting the setting, set AUTO LOCK/HOLD to HOLD. The IRIS, SHUTTER SPEED, GAIN, WHT BAL buttons and the control dial do not work in these manual settings.

To return to automatic adjustment mode

Press repeatedly the button of the item you want to return to automatic adjustment mode until the indicator disappears in the viewfinder. To return all the items to automatic mode, set AUTO LOCK/HOLD to AUTO LOCK.

Note on gain level

When you select a gain level that is too high, the picture may be distorted.

Para ajustar la velocidad de obturación

Es posible seleccionar la velocidad de obturación entre las 20 (CCD-TR3300E) o 16 (CCD-TR2200E) velocidades siguientes:

— CCD-TR3300E:
1/3, 1/6, 1/12, 1/25, 1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000.
— CCD-TR2200E:
1/50, 1/75, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/10000

Para aumentar la velocidad de obturación, seleccione un ajuste menor (indicador de valor mayor del visor electrónico).

Para ajustar la ganancia

Es posible seleccionar la ganancia entre los 8 niveles siguientes: -3 dB, 0 dB, +3 dB, +6 dB, +9 dB, +12 dB, +15 dB, +18 dB. Para aumentar la ganancia con el fin de incrementar el brillo de la imagen, seleccione un nivel mayor.
Si ajusta manualmente la apertura antes de ajustar la ganancia, el nivel de ésta se define en función del ajuste de apertura.

Para cambiar el ajuste

Pulse el botón correspondiente al elemento que desee cambiar de forma que el indicador del elemento seleccionado aparezca resaltado en el visor electrónico. Gire el dial de control para cambiar al ajuste que desee.

Para bloquear los ajustes manuales

Después de realizar el ajuste, sitúe AUTO LOCK/HOLD en HOLD. Los botones IRIS, SHUTTER SPEED, GAIN, WHT BAL y el dial de control no funcionarán en estos ajustes manuales.

Para volver al modo de ajuste automático

Pulse varias veces el botón del elemento que desee recuperar en modo de ajuste automático hasta que el indicador desaparezca del visor electrónico. Para recuperar todos los elementos en modo automático, ajuste AUTO LOCK/HOLD en AUTO LOCK.

Nota sobre el nivel de ganancia

Si selecciona un nivel de ganancia demasiado alto, la imagen puede distorsionarse.

Using slow shutter (CCD-TR3300E only)

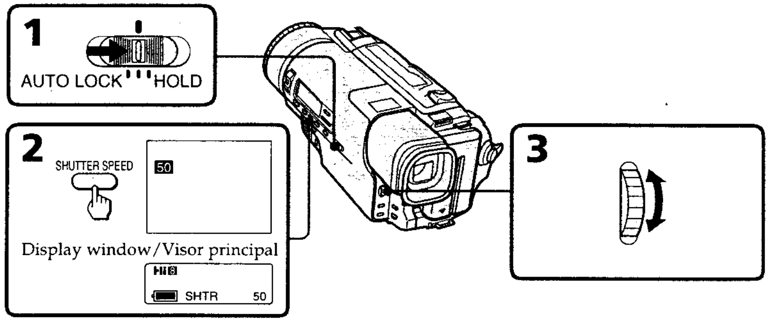
Uso del obturador a baja velocidad (sólo CCD-TR3300E)

If you want to record a dark picture brightly, or represent the movement of the subject lively, set the shutter speed to 1/25, 1/12, 1/6 or 1/3 (Slow shutter).

(1) Set AUTO LOCK/HOLD to the centre position.
(2) Press SHUTTER SPEED.
The shutter speed value indicator appears in the display.
(3) Turn the control dial to select the desired shutter speed (1/25, 1/12, 1/6 or 1/3). As the indicator in the viewfinder becomes smaller, the shutter speed becomes slower.

Si desea grabar con brillo una imagen oscura o representar vivamente el movimiento del objeto, ajuste la velocidad de obturación en 1/25, 1/12, 1/6 o 1/3 (Obturación a baja velocidad).

(1) Ajuste AUTO LOCK/HOLD en la posición central.
(2) Pulse SHUTTER SPEED.
El visor muestra el indicador de valor de velocidad de obturación.
(3) Gire el dial de control para seleccionar la velocidad de obturación que desee (1/25, 1/12, 1/6 o 1/3). Esta será más lenta según disminuye el indicador del visor electrónico.



To return to automatic adjustment mode

Press SHUTTER SPEED repeatedly until the shutter speed value indicator disappears in the viewfinder.

When recording with slow shutter function

- You cannot use flash motion, overlap, wipe, still or luminauncekey function.
- Autofocus may not be effective. Focus manually using a tripod.

Para volver al modo de ajuste automático

Pulse SHUTTER SPEED varias veces hasta que el indicador de valor de velocidad de obturación desaparezca del visor electrónico.

Si graba con la función de obturador a baja velocidad

- No es posible emplear las funciones de movimiento por impulsos, superposición, desplazamiento de imágenes, imagen fija ni de luminancia.
- El enfoque automático puede no ser efectivo. Realice el enfoque manualmente empleando un trípode.

Tips for manual adjustment

When you shoot in manual adjustment mode, we recommend you to keep the exposure fixed to make a clear picture. This section shows you what the exposure is and how to adjust each item with the exposure fixed.

Understanding the exposure

Exposure is determined by aperture, shutter speed and gain, and is measured in EV (exposure value) as shown below.

Total EV = EV from aperture control
+ EV from shutter speed control
+ EV from gain control

The total exposure value can be varied or maintained at a constant level by controlling the aperture, gain and shutter speed.

Use the following graph to select the setting. One scale corresponds to 0.5 EV.
[a] Vertical axis: Aperture value (F value)
[b] Horizontal axis: Shutter speed (per second)
[c] Diagonal axis: Gain level (dB)

Consejos relativos a ajustes manuales

Si filma en modo de ajuste manual, se recomienda mantener fija la exposición con el fin de obtener imágenes nítidas. En esta sección se describe el concepto de exposición y el procedimiento de ajuste de cada elemento con la exposición fijada.

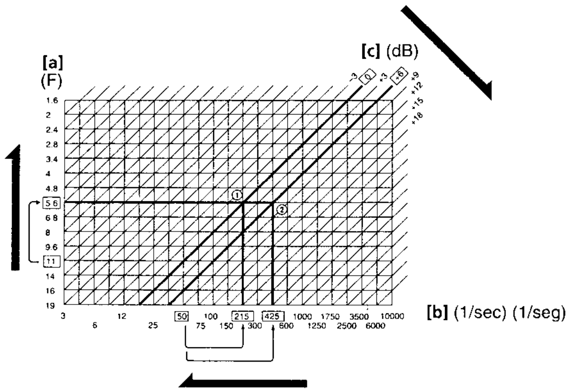
Concepto de exposición

La exposición se determina mediante la apertura, velocidad de obturación y ganancia, y se mide en EV (valor de exposición) como se muestra a continuación.

EV total= EV del control de apertura
+ EV del control de velocidad de obturación
+ EV del control de ganancia

El valor total de exposición puede modificarse o mantenerse en un nivel constante mediante el control de la apertura, ganancia y velocidad de obturación.

Utilice el siguiente gráfico para seleccionar el ajuste. Una escala corresponde a un EV de 0,5.
[a] Eje vertical: Valor de apertura (valor F)
[b] Eje horizontal: Velocidad de obturación (por segundo)
[c] Eje diagonal: Nivel de ganancia (dB)



➡ : Brighter/Más brillante

Tips for manual adjustment

Creating a desired picture without changing the exposure

When the aperture value is F11, the shutter speed is 1/50, and the gain level is 0 dB, adjust the aperture value manually to F5.6, as an example.
If you change the aperture value from F11 to F5.6 in the above example, the exposure from aperture control becomes brighter by +2 EV. Adjust the shutter speed and the gain so that the exposure becomes darker by −2 EV to not change the total exposure.

Example 1: changing only the shutter speed

To reduce the exposure by −2 EV using the shutter speed, you should change the shutter speed from 1/50 to 1/215 (①). (5 steps increase)

Example 2: setting the shutter speed to 1/425 and changing the gain level

When the shutter speed is changed from 1/50 to 1/425, the EV from the shutter speed control changes to −3 EV. To maintain total exposure, +1 EV (2 steps) should be added by increasing the gain level. Change the gain level from 0 dB to +6 dB (②). Note that when you set the gain level higher, the picture may be distorted.

Notes on manual adjustment
- When recording outdoors, the brightness of a subject may be affected by weather.
- When recording conditions change, we recommend that you reset each item.

Consejos relativos a ajustes manuales

Creación de una imagen determinada sin cambiar la exposición

Si el valor de apertura es F11, la velocidad de obturación 1/50 y el nivel de ganancia 0 dB, ajuste manualmente el valor de apertura en F5.6 a modo de ejemplo.
Si varía el valor de apertura de F11 a F5.6 en el ejemplo anterior, la exposición del control de apertura será más brillante en +2 EV. Ajuste la velocidad de obturación y la ganancia de forma que la exposición se oscurezca en −2 EV y la exposición total no varíe.

Ejemplo 1: Modificación sólo de la velocidad de obturación

Para reducir la exposición en −2 EV empleando la velocidad de obturación, cambie ésta de 1/50 a 1/215 ①. (incremento de 5 intervalos)

Ejemplo 2: Ajuste de la velocidad de obturación en 1/425 y cambio del nivel de ganancia

Si cambia la velocidad de obturación de 1/50 a 1/425, el valor EV del control de dicha velocidad cambia a −3 EV. Para mantener la exposición total, debe añadirse el valor +1 EV (2 intervalos) incrementando el nivel de ganancia. Cambie éste de 0 dB a +6 dB ②. Observe que si ajusta el nivel de ganancia en un valor superior, la imagen puede distorsionarse.

Notas sobre el ajuste manual
- Si graba en exteriores, el brillo del objeto puede verse afectado por las condiciones meteorológicas.
- Si las condiciones de grabación cambian, se recomienda ajustar cada elemento.

Shooting with backlighting

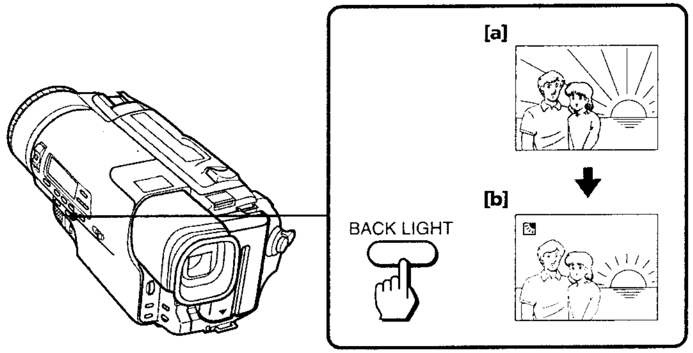
Filmación a contraluz

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The ▣ indicator appears in the viewfinder.

Si filma un objeto con la fuente luminosa situada detrás de él, o bien un objeto con un fondo luminoso, emplee la función BACK LIGHT.

Pulse BACK LIGHT. El indicador ▣ aparece en el visor electrónico.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

[a] El objeto presenta demasiada oscuridad debido a la iluminación de fondo.
[b] El objeto presenta más brillo con la compensación de la iluminación de fondo.

After shooting

Be sure to release this adjustment condition by pressing BACK LIGHT again. The ▣ indicator disappears. Otherwise, the picture will be too bright under normal lighting conditions.

This function is also effective under following conditions:

- On snow, e.g. at a ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

Note on the backlight function

If you press IRIS, SHUTTERSPEED or GAIN, the backlight function is cancelled.

Tras la filmación

Asegúrese de cancelar este ajuste; para ello, vuelva a pulsar BACK LIGHT. El indicador ▣ desaparecerá. En caso contrario, la imagen presentará demasiado brillo en condiciones normales de iluminación.

Esta función resulta también efectiva en las siguientes condiciones:

- En la nieve, por ejemplo, en una estación de esquí
- En la playa con intensa iluminación solar
- Objetos con fuentes de iluminación cercanas o con espejos que reflejen luz
- Objetos blancos con fondo blanco. Especialmente si filma una persona cuyas prendas de vestir sean brillantes y confeccionadas con seda o fibras sintéticas, su rostro tenderá a oscurecerse si no emplea esta función.

Nota sobre la función de filmación a contraluz

Si pulsa IRIS, SHUTTERSPEED o GAIN, esta función se cancelará.

Adjusting the brightness of the picture

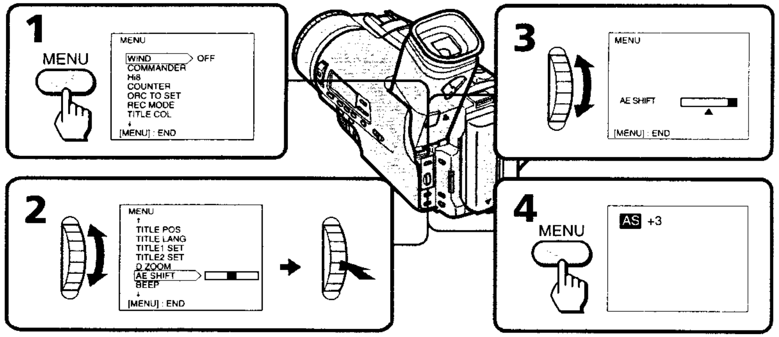
Ajuste del brillo de la imagen

When you shoot in a snowfield or on a beach in the mid-summer and the subject may become dark because of the extreme brightness, you can change the brightness of the picture in the menu system. You can also use this function when the subject is too bright — subjects on stages, night views, etc.

(1) While the camcorder is in Standby mode, press MENU to display the menu in the viewfinder.
(2) Turn the control dial to select AE SHIFT, then press the control dial.
(3) Turn the control dial to adjust the brightness of the picture. The picture becomes brighter when you turn the control dial up, and darker when you turn the control dial down.
(4) Press MENU. The menu display disappears and the AE shift indicator appears in the viewfinder.

Cuando filme en una zona nevada o en una playa en pleno verano y el objeto se oscurezca debido al exceso de brillo, es posible cambiar el brillo de la imagen en el sistema de menú. Igualmente puede emplear esta función si el objeto presenta demasiado brillo — objetos sobre escenarios, vistas nocturnas, etc.

(1) Mientras la videocámara se encuentra en modo de espera, pulse MENU para que el menú aparezca en el visor electrónico.
(2) Gire el dial de control para seleccionar AE SHIFT y, a continuación, púlselo.
(3) Gire el dial de control para ajustar el brillo de la imagen. El brillo de ésta aumentará al girar el dial hacia arriba, y disminuirá al girarlo hacia abajo.
(4) Pulse MENU. El menú desaparecerá, mientras que el indicador de desplazamiento AE aparecerá en el visor electrónico.



To cancel the AE shift

Set AE SHIFT to the centre position in the menu system.

When adjusting the brightness

We recommend you to connect the camcorder to a TV so that you can monitor the brightness on the TV.

Note on the AE shift

You cannot change AE shift while adjusting the aperture manually.

Para cancelar el desplazamiento AE

Ajuste AE SHIFT en la posición central en el sistema de menú.

Al ajustar el brillo

Se recomienda conectar la videocámara a un televisor para poder controlar el brillo en éste.

Nota sobre el desplazamiento AE

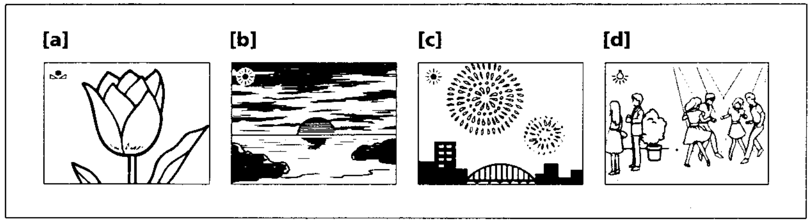
No es posible cambiar el desplazamiento AE mientras ajusta manualmente la apertura.

Adjusting the white balance

White balance is the adjustment to make white subjects look white and to obtain a more natural colour balance.

Selecting the appropriate mode

Select the appropriate white balance mode under the following conditions:



One push white balance mode

- Shooting with the lighting condition on the subject set and with the white balance set in a particular condition
- Monochromatic subject or background **[a]**

☀ Outdoor mode

- Under a colour matching fluorescent lamp
- Recording a sunset/sunrise, just after sunset, just before sunrise **[b]**, neon signs, or fireworks **[c]**

💡 Indoor mode

- Lighting condition changes quickly. **[d]**
- Too bright place such as photography studios
- Under sodium lamps or mercury lamps

When you shoot under a fluorescent lamp, however, we recommend you to adjust the white balance automatically. You may not get an appropriate white balance when you record in the indoor mode.

Ajuste del balance de blancos

Este ajuste se realiza para que los objetos blancos parezcan blancos y para obtener un balance de color más natural.

Selección del modo adecuado

Seleccione el modo adecuado de balance de blancos en la siguientes condiciones:

Modo de balance de blancos con un solo movimiento

- Filmación con la condición de iluminación del objeto ajustada y con el balance de blancos ajustado en una determinada condición
- Objeto o fondo monocromático **[a]**

☀ Modo de exteriores

- Bajo una lámpara fluorescente con concordancia de colores
- Grabación de puestas y salidas del sol, inmediatamente después de la puesta de sol, inmediatamente antes de la salida del sol **[b]**, letreros de neón o fuegos artificiales **[c]**

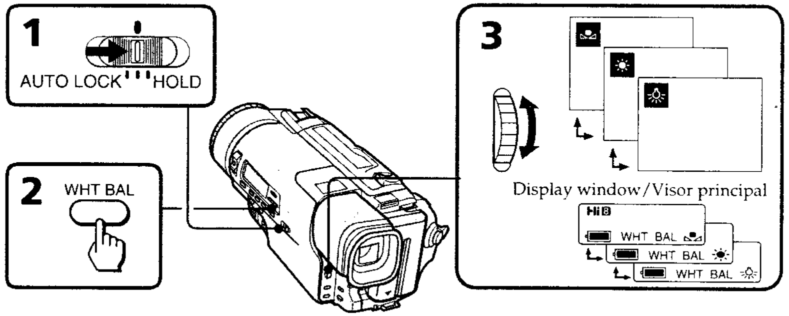
💡 Modo de interiores

- La condición de iluminación cambia rápidamente. **[d]**
- Lugares con demasiada iluminación, como estudios fotográficos
- Con lámparas de sodio o de mercurio

No obstante, se recomienda ajustar el balance de blancos automáticamente cuando filme con lámparas fluorescentes. Es posible que no obtenga un balance de blancos adecuado cuando grabe en el modo de interiores.

Setting the white balance mode

(1) Set AUTO LOCK/HOLD to the centre position.
(2) Press WHT BAL so that the white balance indicator appears in the viewfinder.
(3) Turn the control dial to select the desired mode.
When you select one push white balance mode, press the control dial after selecting the one push white balance indicator.



To return to automatic white balance mode

Press WHT BAL so that the white balance indicator disappears, or set AUTO LOCK/HOLD to AUTO LOCK.

When the light source changes

Adjust the white balance again. You cannot select the one push white balance mode when you are recording.

- When you record in manual adjustment mode, set AUTO LOCK/HOLD to AUTO LOCK once, then set it to the centre position again.
- When you record in automatic adjustment mode, or when you replace the battery pack, point the lens toward a white object for approx. 10 seconds, then start recording.

Ajuste del modo de balance de blancos

(1) Ajuste AUTO LOCK/HOLD en la posición central.
(2) Pulse WHT BAL para que el visor electrónico muestre el indicador de balance de blancos.
(3) Gire el dial de control para seleccionar el modo que desee.
Si selecciona el modo de balance de blancos con un solo movimiento, pulse el dial de control después de seleccionar el indicador de balance de blancos con un solo movimiento.

Para volver al modo automático de balance de blancos

Pulse WHT BAL hasta que desaparezca el indicador de balance de blancos, o ajuste AUTO LOCK/HOLD en AUTO LOCK.

Si la fuente de iluminación cambia

Vuelva a ajustar el balance de blancos. No es posible seleccionar el modo de balance de blancos con un solo movimiento durante la grabación.

- Cuando grabe en modo de ajuste manual, ajuste AUTO LOCK/HOLD en AUTO LOCK una vez y, a continuación, vuelva a ajustarlo en la posición central.
- Cuando grabe en modo de ajuste automático, o después de haber sustituido el paquete de batería, oriente el objetivo hacia un objeto blanco durante unos 10 segundos y, a continuación, inicie la grabación.

Adjusting white balance manually (One push white balance mode)

You can set the white balance for a particular lighting condition manually. When the white balance is set manually, the colours of the object being shot will continue to look natural as long as the lighting conditions remain the same.
When a particular colour is shot under different lighting sources, the colour often seems to change color. When shooting subjects under changing lighting conditions, set the white balance to the AUTO mode; the subject colours will remain consistent even under changing lighting conditions.

(1) Set AUTO LOCK/HOLD to the centre position.
(2) Press WHT BAL, then turn the control dial to select one push white balance indicator.
(3) Attach the supplied white lens cap and point the camcorder at a subject if you are shooting outdoors or at a source of light if shooting indoors.
(4) Press the control dial.
The one push white balance indicator starts to flash quickly. Once the white balance is set, the indicator stops flashing.

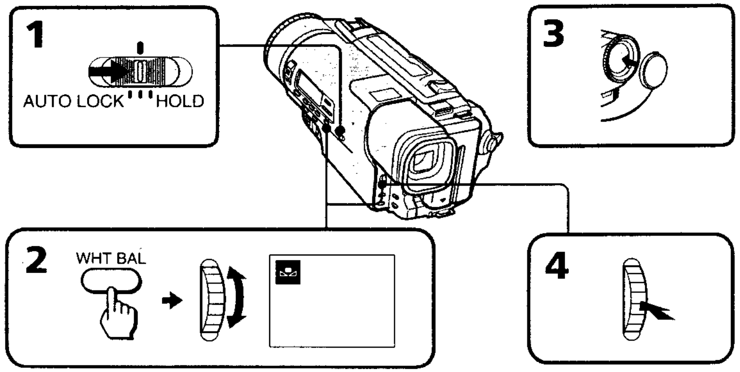
When you are shooting under studio lighting or a video light, we recommend you to record in indoor mode.

Ajuste manual (modo de balance de blancos con un solo movimiento)

Es posible ajustar manualmente el balance de blancos para determinadas condiciones de iluminación. Si lo ajusta manualmente, los colores del objeto que esté filmando continuarán mostrándose naturales siempre que las condiciones de iluminación no cambien. Si filma un determinado color con fuentes de iluminación diferentes, a menudo dicho color parece cambiar. Cuando filme objetos bajo condiciones de iluminación cambiantes, ajuste el balance de blancos en modo AUTO; de esta forma, los colores del objeto permanecerán estables aunque dichas condiciones sean cambiantes.

(1) Ajuste AUTO LOCK/HOLD en la posición central.
(2) Pulse WHT BAL y, a continuación, gire el dial de control para seleccionar el indicador de balance de blancos con un solo movimiento.
(3) Fije la tapa blanca del objetivo suministrada y oriente la videocámara hacia un objeto si filma en exteriores o hacia una fuente de iluminación si filma en interiores.
(4) Pulse el dial de control.
El indicador de balance de blancos con un solo movimiento comienza a parpadear rápidamente. Una vez ajustado el balance de blancos, el indicador dejará de parpadear.

Cuando filme con iluminación de estudio o con una lámpara de vídeo, se recomienda grabar en modo de interiores.



To return to automatic white balance adjustment mode

Press WHT BAL so that the one push white balance indicator disappears in the viwfinder.

Note on the one push white balance mode indicator

Slowly flashing indicator: white balance has not been set.
Quickly flashing indicator: white balance is being adjusted with the control dial.
Lighting: white balance has been set.

Note on the one push white balance mode setting

The white balance setting for one push white balance mode is retained even when you turn the power off or change white balance mode, as long as the power source is installed in the camcorder. The setting is retained for about 1 hour even when you disconnect the power source if the lithium battery is installed in the camcorder.

If the one push white balance indicator does not stop flashing when you press the control dial

The lighting is probably insufficient or you have forgotten to put the white lens cap on. If this appears to be the case, increase the lighting or attach the white cap and try again. If the indicator still continues to flash after trying this, press WHT BAL to set the camcorder to the automatic white balance mode (no indicator) or set AUTO LOCK/HOLD to AUTO LOCK.

Para volver al modo de ajuste automático del balance de blancos

Pulse WHT BAL para que el indicador de balance de blancos con un solo movimiento desaparezca del visor electrónico.

Nota sobre el indicador de modo de balance de blancos con un solo movimiento

Indicador con parpadeo lento: No se ha ajustado el balance de blancos. Indicador con parpadeo rápido: El balance de blancos está ajustándose con el dial de control.
Iluminado: El balance de blancos se ha ajustado.

Nota sobre el ajuste del modo de balance de blancos con un solo movimiento

Este ajuste se mantiene aunque desactive la alimentación o cambie el modo de balance de blancos, siempre que la fuente de alimentación esté instalada en la videocámara. El ajuste se conserva durante 1 hora aproximadamente aunque desconecte la fuente de alimentación si la pila de litio está instalada en la videocámara.

Si el indicador de balance de blancos con un solo movimiento no deja de parpadear al pulsar el dial de control

Probablemente la iluminación es insuficiente o ha olvidado colocar la tapa blanca del objetivo. Si este es el caso, aumente la iluminación o fije la tapa blanca y vuelva a intentarlo. Si aún así el indicador sigue parpadeando, pulse WHT BAL para ajustar la videocámara en el modo automático de balance de blancos (sin indicador) o ajuste AUTO LOCK/HOLD en AUTO LOCK.

Searching the boundaries of recorded date

You can search for the boundary between recording dates using the Date Code automatically recorded on the tape.
There are two modes:

- Searching for the beginning of a specific date, and playing back from there (**Date Search**)
- Searching for the beginning of all days, one after another, playing back about 10 seconds of each (**Date Scan**)

Each time you press DATE SEARCH, the mode changes as follows:

Date Search → Date Scan → *nothing*

Búsqueda de los límites de las fechas de grabación

Es posible buscar los límites de las fechas de grabación mediante el uso del código de fecha grabado automáticamente en la cinta. Existen dos modos:

- Búsqueda de una fecha específica para iniciar la reproducción a partir de ella (**Búsqueda de fechas**)
- Búsqueda del comienzo de todos los días, una tras otro, para reproducir 10 segundos aproximadamente de cada uno de ellos (**Exploración de fechas**)

Cada vez que pulse DATE SEARCH, el modo cambia de la siguiente forma:

Búsqueda de fechas → Exploración de fechas → nada

To search for the beginning of a specific date

(1) Set the POWER switch to PLAYER. The tape transport buttons light up.
(2) Press DATE SEARCH on the Remote Commander.
(3) When the current position is **[b]**, press ◀◀ to search towards **[a]** or press ▶▶ to search towards **[c]**.

To scan the beginning of all days

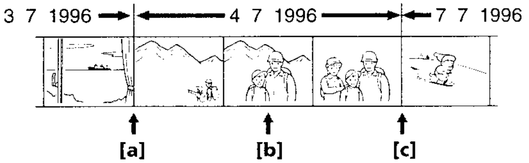
(1) Set the POWER switch to PLAYER.
(2) Press DATE SEARCH on the Remote Commander twice.
(3) Press ◀◀ or ▶▶. Date Scan starts.

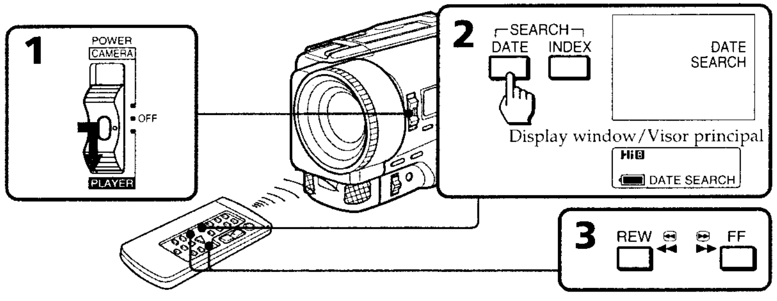
Para buscar una fecha específica

(1) Ajuste el interruptor POWER en PLAYER. Los botones de transporte de cinta se iluminan.
(2) Pulse DATE SEARCH en el mando a distancia.
(3) Cuando la posición actual sea **[b]**, pulse ◀◀ para realizar la búsqueda hacia **[a]** o ▶▶ para realizar la búsqueda hacia **[c]**.

Para explorar el comienzo de todos los días

(1) Ajuste el interruptor POWER en PLAYER.
(2) Pulse DATE SEARCH en el mando a distancia dos veces.
(3) Pulse ◀◀ o ▶▶. Se inicia la exploración de fechas.





To stop searching or scanning
Press one of the following tape transport buttons: ▷, □, ◀◀ or ▶▶.

To view pictures during searching or scanning
Press ▷ and then press ◀◀ or ▶▶.

Notes on Date Search and Date Scan mode

- If a day's recording is not longer than 2 minutes, the camcorder may not accurately find its boundaries.
- Date Search and Date Scan do not function on a tape recorded by a camcorder without the Data Code function. Your camcorder has the Data Code function.
- When searching the boundaries of date on the tape, the forwarded or reversed picture appears in the viewfinder. Visual noise also appears during this searching. This is not a mulfunction.

Para detener la búsqueda o la exploración
Pulse alguno de los siguientes botones de transporte de cinta: ▷, □, ◀◀ o ▶▶.

Para visualizar las imágenes durante la búsqueda o la exploración
Pulse ▷ y, a continuación, ◀◀ o ▶▶.

Notas sobre los modos de búsqueda y exploración de fechas

- Si la grabación de un día no es superior a 2 minutos, es posible que la videocámara no localice sus límites con precisión.
- Las funciones de búsqueda y exploración de fechas no se activan si la cinta se ha grabado con una videocámara desprovista de la función de código de datos. Esta videocámara dispone de dicha función.
- Al buscar los límites de fechas en la cinta, el visor electrónico muestra la imagen posterior o anterior. Durante esta búsqueda, aparece también ruido visual; esto no es un fallo de funcionamiento.

Returning to a pre-registered position

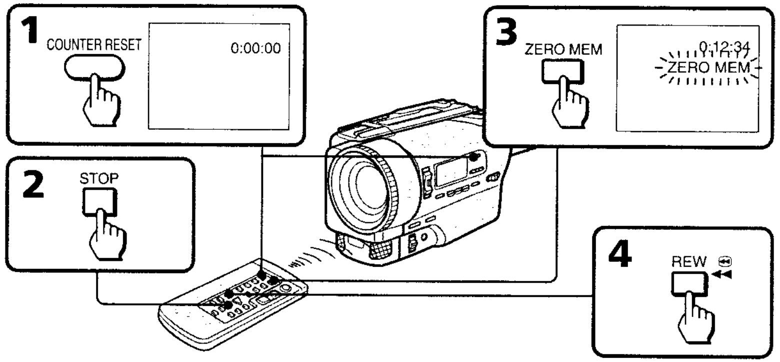
Localización de posiciones previamente registradas

Using the Remote Commander, you can easily go back to the desired point on a tape after playback. Use the tape counter. If the RC time code appears in the viewfinder, set COUNTER to NORMAL in the menu system to display the tape counter.

(1) During playback, press COUNTER RESET at the point you later want to locate. The counter shows "0:00:00" in the viewfinder.
(2) Press □ when you want to stop playback.
(3) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes in the viewfinder.
(4) Press ◀◀ to rewind or press ▶▶ to fast-forward the tape to the counter's zero point. The tape stops automatically when the counter reaches approximately zero.

Mediante el uso del mando a distancia, es posible retroceder fácilmente al punto que desee de la cinta tras la reproducción. Para ello, emplee el contador de cinta. Si el código de tiempos RC aparece en el visor electrónico, ajuste COUNTER en NORMAL en el sistema de menú para visualizar el contador de cinta.

(1) Durante la reproducción, pulse COUNTER RESET en el punto que desee localizar posteriormente. El contador mostrará "0:00:00" en el visor electrónico.
(2) Pulse □ cuando desee detener la reproducción.
(3) Pulse ZERO MEM en el mando a distancia. El indicador ZERO MEM parpadeará en el visor electrónico.
(4) Pulse ◀◀ para rebobinar la cinta o ▶▶ para que avance rápidamente hasta el punto cero del contador. La cinta se detendrá automáticamente cuando el contador llegue aproximadamente a cero.



Notes on the tape counter

- Something must be recorded on the tape in order for the tape counter to function. Tape counter does not work on a blank tape.
- There may be a discrepancy of several seconds from the actual time.

Notes on ZERO MEM

- When you press ZERO MEM, the counter's zero point is memorized. Press ZERO MEM again before rewinding to cancel the memory.
- This function is cancelled automatically once the tape is rewound or advanced to the point you pre-registered.
- ZERO MEM does not function during recording or playing back.

Notas sobre el contador de cinta

- Para que este contador se active, es preciso que la cinta contenga alguna grabación. Este contador no se activará si la cinta es virgen.
- Es posible que exista una diferencia de algunos segundos con respecto a la hora real.

Notas sobre ZERO MEM

- Si pulsa ZERO MEM, el punto cero del contador se memorizará. Vuelva a pulsar ZERO MEM antes de rebobinar para cancelar la memoria.
- Esta función se cancela automáticamente una vez que la cinta se rebobina o se avanza hasta el punto previamente registrado.
- ZERO MEM no se activa durante la grabación o la reproducción.

Locating the marking position

You can locate the beginning of a desired programme easily by marking an index signal during recording or playback and searching for it later.

Marking an index signal

You can mark an index signal during recording or playback.

When marking at the beginning of recording or playback

Press INDEX MARK on the Remote Commander in recording standby or playback pause mode. The INDEX MARK indicator appears in the viewfinder with the MARK indicator flashing. When recording or playback starts, the MARK indicator stops flashing. This shows that the index signal is being marked. Then the INDEX MARK indicator will disappear.

When marking during recording or playback

Press INDEX MARK on the Remote Commander at the point you want to locate later.

Localización de posiciones marcadas

Es posible localizar fácilmente el comienzo del programa que desee mediante la introducción de una señal de índice durante la grabación o la reproducción y buscarla más adelante.

Introducción de señales de índice

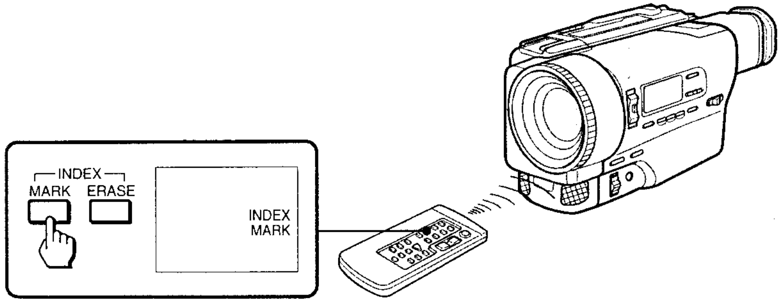
Es posible introducir señales de índice durante la grabación o la reproducción.

Introducción de señales en el comienzo de la grabación o reproducción

Pulse INDEX MARK en el mando a distancia durante el modo de pausa de reproducción o de espera de grabación. El indicador INDEX MARK aparecerá en el visor electrónico con el indicador MARK parpadeando. Al iniciarse la grabación o la reproducción, el indicador MARK dejará de parpadear. Esto indica que la señal de índice está registrándose. A continuación, el indicador INDEX MARK desaparecerá.

Introducción de señales durante la grabación o la reproducción

Pulse INDEX MARK en el mando a distancia en el punto que desee localizar más adelante.



Notes on marking

- Make sure you mark index signals at more than two-minute intervals. Otherwise, you may not be able to search for them correctly.
- If you stop recording while the index signal is being marked (the INDEX MARK indicator lights in the viewfinder), the search may not be completed correctly.
- If you mark an index signal on the tape with the Data Code recorded, the Data Code will be erased at the point on which the index signal is marked. When playing back this tape, the camcorder keeps displaying the Data Code immediately before the erased one.
- A black band appears when you mark index signal during playback, and the sound is not recorded. This does not affect the picture and the sound that are already recorded.
- You cannot mark an index signal on a tape with the red mark on the cassette exposed, or on a tape recorded in LP mode.
- You cannot mark an index signal on an NTSC-recorded tape.

Notas sobre la introducción de señales

- Asegúrese de introducir las señales de índice a intervalos superiores a dos minutos, ya que en caso contrario es posible que no pueda localizarlas correctamente.
- Si detiene la grabación mientras la señal de índice está registrándose (el indicador INDEX MARK se ilumina en el visor electrónico), es posible que la búsqueda no se realice correctamente.
- Si introduce una señal de índice en una cinta provista del código de datos, éste se borrará en el punto que introduzca la señal de índice. Al reproducir esta cinta, la videocámara mostrará el código de datos inmediatamente anterior al borrado.
- Si introduce señales de índice durante la reproducción, aparecerá una banda negra y el sonido no se grabará. Esto no afectará a la imagen ni al sonido ya grabados.
- No es posible introducir señales de índice en una cinta con la marca roja del videocassette al descubierto, ni en una cinta grabada en modo LP.
- No es posible introducir señales de índice en cintas grabadas en el sistema NTSC.

Scanning the beginning of each marking position – index scan

Use the Remote Commander. To view the picture on a TV, press DISPLAY.

(1) Press INDEX on the Remote Commander during normal playback.

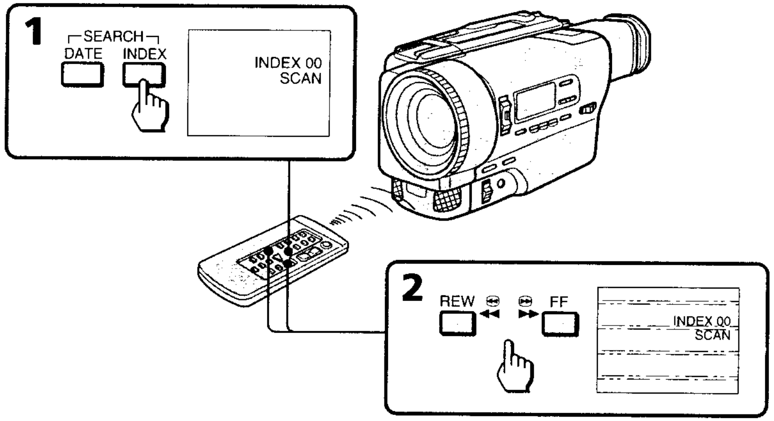
(2) Press ◀◀ or ▶▶. The tape rewinds or advances rapidly and plays back for approximately 10 seconds form the point on which the index signal was marked. If you want to continue playback, press ▷. When you do not press any button, the tape is automatically scanned to the next programme.

Exploración del principio de cada posición marcada – exploración de índices

Emplee el mando a distancia. Si desea visualizar la imagen en un televisor, pulse DISPLAY.

(1) Pulse INDEX en el mando a distancia durante la reproducción normal.

(2) Pulse ◀◀ o ▶▶. La cinta se rebobina o avanza rápidamente y se reproduce durante aproximadamente 10 segundos a partir del punto en que ha introducido la señal de índice. Si desea continuar la reproducción, pulse ▷. Si no pulsa ningún botón, la unidad explorará la cinta automáticamente hasta el siguiente programa.



To cancel index scan mode

Press ▷. Normal playback resumes.

Para cancelar el modo de exploración de índices

Pulse ▷ para reanudar la reproducción normal.

Locating the marking position

Localización de posiciones marcadas

Locating the desired marking position – index search

(1) Press INDEX on the Remote Commander during stop or playback mode.

(2) Press INDEX repeatedly until the index number of the desired programme is displayed in the viewfinder.

(3) Press ◀◀ or ▶▶. Playback starts from the beginning of the desired programme.

[a] the current position
[b] the INDEX number

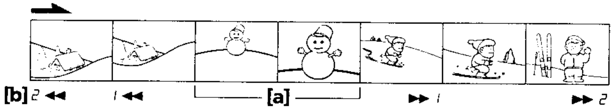
Localización de la posición marcada que desee – búsqueda de índices

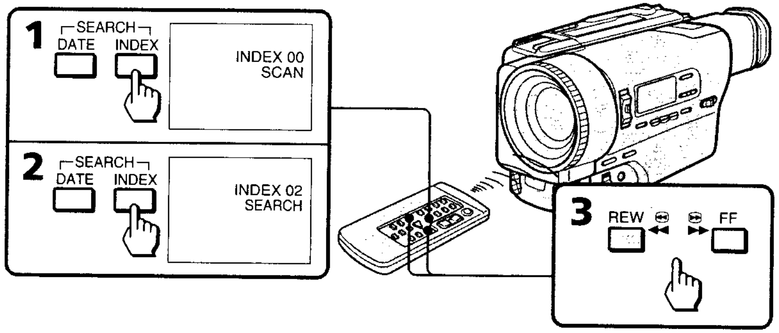
(1) Pulse INDEX en el mando a distancia durante el modo de parada o de reproducción.

(2) Pulse INDEX varias veces hasta que el visor electrónico muestre el número de índice correspondiente al programa que desee.

(3) Pulse ◀◀ o ▶▶. La reproducción se inicia desde el principio del programa seleccionado.

[a] posición actual
[b] número de índice





To stop index search mode

Press ▷. Normal playback resumes.

Note on the index number

The index number (1, 2, etc.) indicates the distance from the point you are now viewing **[a]**, regardless of the direction.

Para detener el modo de búsqueda de índices

Pulse ▷ para reanudar la reproducción normal.

Nota sobre los números de índice

El número de índice (1, 2, etc.) indica la distancia a partir del punto que visualiza actualmente **[a]**, independientemente del sentido.

Erasing an index signal

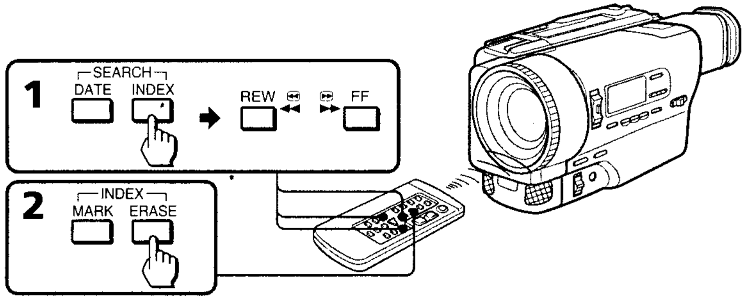
(1) Locate the index signal to be erased using the index scan or index search function.

(2) Press INDEX ERASE on the Remote Commander within 2 to 10 seconds while the desired programme plays back. After the index signal is erased, the camcorder returns to index scan or index search mode, whichever was used in step 1.

Borrado de señales de índice

(1) Localice la señal de índice que desee borrar mediante la función de búsqueda o de exploración de índices.

(2) Pulse INDEX ERASE en el mando a distancia en un intervalo de 2 a 10 segundos durante la reproducción del programa que desee. Una vez borrada la señal de índice, la videocámara vuelve al modo de búsqueda o de exploración de índices según el empleado en el paso 1.



Notes on erasing

- Press INDEX ERASE more than 2 seconds after the playback of the desired programme begins.
- You cannot erase the index signal on a tape with the red mark on the cassette exposed.
- While the index signal is being erased, the sound cannot be heard and a black band appears at the bottom of the picture. This will not affect the recorded sound or picture.
- The camcorder can detect index signals marked with VCRs, but cannot erase them. VCRs with an index function can detect index signals marked with this camcorder but cannot erase them.
- An index signal may be erased when making PCM after recording on another VCR in the portion where the index signal is marked.

Note on and Data Code

When an index signal is erased, Data Code on the same portion of the tape is also erased.

Notas sobre el borrado de señales de índice

- Pulse INDEX ERASE durante más de 2 segundos después de comenzar la reproducción del programa que desee.
- No es posible borrar señales de índice en una cinta con la marca roja del videocassette al descubierto.
- Durante el borrado de la señal de índice, no será posible escuchar el sonido y aparecerá una banda negra en la parte inferior de la imagen. Esto no afecta a la imagen ni al sonido grabados.
- La videocámara puede detectar señales de índice introducidas con videograbadoras, aunque no puede borrarlas. Las videograbadoras provistas de la función de índice pueden detectar señales de índice introducidas con esta videocámara, aunque no pueden borrarlas.
- Es posible que se borren señales de índice al emplear el modo PCM después de efectuar la grabación en otra videograbadora en la parte donde se ha introducido la señal de índice.

Nota sobre el código de datos

Al borrar una señal de índice, el código de datos situado en la misma parte de la cinta también se borrará.

Writing the RC Time code on a recorded tape

Escritura del código de tiempos RC en una cinta grabada

You can write the RC time code on a recorded tape. Use the Remote Commander.

(1) While pressing the small green button on the POWER switch, set it to PLAYER.

(2) Rewind the tape to the beginning and set the camcorder to playback pause mode.

(3) Press TIME CODE WRITE on the Remote Commander. The TIME CODE WRITE indicator appears in the viewfinder with the WRITE indicator flashing.

(4) Press ▷ or ❚❚ to start playback. The WRITE indicator stops flashing and the RC time code writing starts from 0:00:00:00.

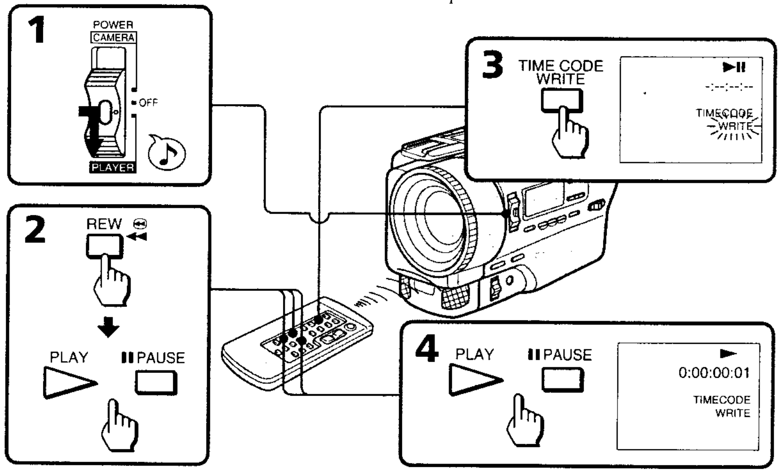
Es posible escribir el código de tiempos RC en una cinta grabada. Para ello, emplee el mando a distancia.

(1) Ajuste el interruptor POWER en PLAYER mientras pulsa el botón verde pequeño del interruptor.

(2) Rebobine la cinta hasta el principio y ajuste la videocámara en modo de pausa de reproducción.

(3) Pulse TIME CODE WRITE en el mando a distancia. El indicador TIME CODE WRITE aparecerá en el visor electrónico con el indicador WRITE parpadeando.

(4) Pulse ▷ o ❚❚ para iniciar la reproducción. El indicador WRITE dejará de parpadear y se iniciará la escritura del código de tiempos RC a partir de 0:00:00:00.



To stop writing the RC time code

Press ☐ (or any tape transport button).

Para detener la escritura del código de tiempos RC

Pulse ☐ o cualquier botón de transporte de cinta.

To write the RC time code from the end of the RC time code recorded portion

Rewind the tape to the portion on which the RC time code has been written and set the camcorder to playback pause mode. Then follow steps 3 and 4 above. The RC time code is written continuously.

Notes on writing the RC time code

- The RC time code writing stops when:
  - you press TIME CODE WRITE again before starting playback.
  - you press INDEX before starting playback.
  - you change from playback mode to another mode.
- When you are writing the RC time code from the middle of a tape without the time code written, writing starts several frames before the current picture.
- If you write the RC time code on a recorded• tape, the Data Code is erased.
- You cannot mark the RC time code on the tape that is recorded in LP mode. Though you can mark the RC time code on a tape recorded both in LP mode and SP mode, the RC time code written in LP mode, however, may not be read correctly.
- You cannot mark the RC time code on an NTSC-recorded tape.
- While the index signal is being erased, the sound cannot be heard and a black band appears at the bottom of the picture. This will not affect the recorded sound or picture.

Note on --:--:--:-- indicator

The --:--:--:-- indicator appears during playback if:

- nothing is recorded.
- the RC time code is unreadable because of the damage of the tape or because of the noise.
- you recorded using another VCR without RC time code function.
- you erase the index signal or make PCM after recording on another VCR in the portion on which the RC time code is written.

In this case, we recommend you to rewrite the RC time code.

Para escribir el código de tiempos RC a partir de la parte final de grabación de dicho código

Rebobine la cinta hasta la parte en que ha escrito el código de tiempos RC y ajuste la videocámara en modo de pausa de reproducción. Después, siga los pasos 3 y 4 anteriores. El código de tiempos RC se escribirá de forma continua.

Notas sobre la escritura del código de tiempos RC

- El proceso de escritura de este código se detendrá si:
  - vuelve a pulsar TIME CODE WRITE antes del inicio de la reproducción.
  - pulsa INDEX antes del inicio de la reproducción.
  - cambia del modo de reproducción a otro.
- Si escribe el código de tiempos RC desde la mitad de una cinta sin dicho código, el proceso de escritura se iniciará a partir de varios fotogramas anteriores a la imagen actual.
- Si escribe el código de tiempos RC en una cinta grabada, el código de datos se borrará.
- No es posible introducir el código de tiempos RC en cintas grabadas en modo LP. Aunque es posible introducir el código de tiempos RC en una cinta grabada tanto en modo LP como SP, el código escrito en modo LP puede no leerse correctamente.
- No es posible introducir el código de tiempos RC en cintas grabadas en el sistema NTSC.
- No es posible borrar señales de índice en una cinta con la marca roja del videocassette al descubierto.

Nota sobre el indicador --:--:--:--

Este indicador aparece durante la reproducción si:

- no ha grabado nada.
- el código de tiempos RC es ilegible debido a que la cinta está dañada o a ruido.
- ha grabado con otra videograbadora carente de la función de código de tiempos RC.
- borra la señal de índice o emplea el modo PCM después de grabar en otra videograbadora en la parte en que ha escrito el código de tiempos RC.

En este caso, se recomienda volver a escribir el código de tiempos RC.

Editing onto another tape

Edición en otra cinta

You can create your own video programme by editing with any other 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHS-C VHSC, S-VHS-C S-VHSC or β Betamax VCR that has video/audio inputs.

Before editing

Connect the camcorder to the VCR as described in "Connections for playback" on page 21.
Set the input selector on the VCR to LINE, if available.

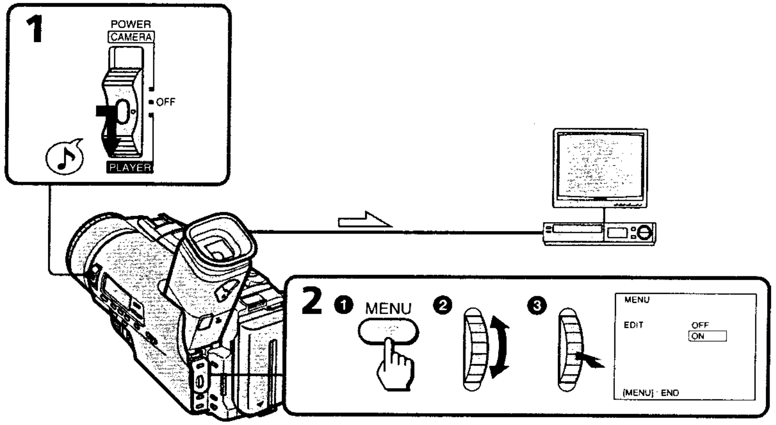
(1) While pressing the small green button on the POWER switch, set it to PLAYER.
(2) Set EDIT to ON in the menu system.

Es posible crear su propio programa de vídeo mediante la edición con cualquier videograbadora 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHS-C VHSC, S-VHS-C S-VHSC o β Betamax que disponga de entradas de vídeo/audio.

Antes de editar

Conecte la videocámara a la videograbadora como se describe en el apartado "Conexiones para la reproducción" de la página 21. Ajuste el selector de entrada de la videograbadora en LINE, si se encuentra disponible.

(1) Ajuste el interruptor POWER en PLAYER mientras pulsa el botón verde pequeño del interruptor.
(2) Ajuste EDIT en ON en el sistema de menú.



⇨ : Signal flow/Flujo de señales

Starting editing

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert your recorded tape into the camcorder.
(2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing, then press **II** to set the camcorder in playback pause mode.
(3) On the VCR, locate the recording start point and set the VCR in recording pause mode.
(4) Press **II** on the camcorder and VCR simultaneously to start editing.

To edit more scenes

Repeat steps 2 to 4.

To stop editing

Press □ on both the camcorder and the VCR.

Note on the DISPLAY function

If you have displayed the viewfinder screen indicators on the TV, erase the indicators by pressing DISPLAY on the Remote Commander so that they will not be superimposed on the edited tape.

Inicio de la edición

(1) Inserte una cinta virgen (o una cinta sobre la que desee grabar) en la videograbadora, e inserte la cinta grabada en la videocámara.
(2) Reproduzca la cinta grabada en la videocámara hasta localizar el punto donde desee iniciar la edición; a continuación, pulse **II** para ajustar la videocámara en modo de pausa de reproducción.
(3) Localice en la videograbadora el punto de inicio de grabación y ajuste dicha videograbadora en modo de pausa de grabación.
(4) Pulse **II** en la videocámara y en la videograbadora simultáneamente para iniciar la edición.

Para editar más escenas

Repita los pasos 2 a 4.

Para detener la edición

Pulse □ en la videocámara y en la videograbadora.

Nota sobre la función DISPLAY

Si ha mostrado en el televisor los indicadores de pantalla del visor electrónico, bórrelos pulsando DISPLAY en el mando a distancia para que no se sobreimpresionen en la cinta editada.

Additional Information

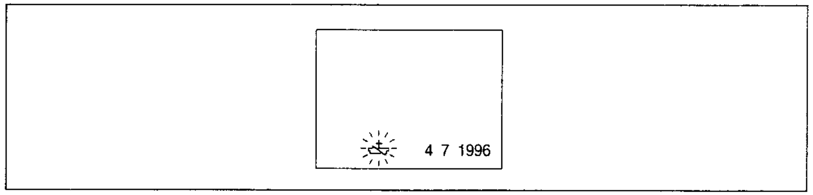
Changing the lithium battery in the camcorder

Your camcorder is supplied with a lithium battery installed. When the battery becomes weak or dead, the ⚡ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 lithium battery. Use of any other battery may present a risk of fire or explosion.**
The lithium battery for the camcorder lasts for about 1 year under normal operation. (The lithium battery that comes installed at the factory may not last 1 year.)

Información complementaria

Cambio de la pila de litio de la videocámara

La videocámara se suministra con una pila de litio instalada. Cuando ésta se debilite o se agote, el indicador I parpadeará en el visor electrónico durante unos 5 segundos si ajusta el interruptor POWER en CAMERA. En este caso, **sustitúyala por una pila de litio Sony CR2025. El uso de otro tipo de pila puede presentar el riesgo de incendios o explosiones.**
La duración de la pila de litio de la videocámara es de 1 año aproximadamente en condiciones normales de uso. (La pila instalada de fábrica puede no durar 1 año.)

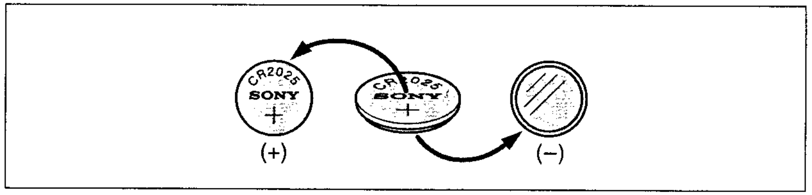


Note on lithium battery

The lithium battery has positive (+) side and negative (–) side as illustrated. **Be sure to insert the lithium battery with the positive side facing out.**

Nota sobre la pila de litio

Esta pila tiene una cara positiva (+) y otra negativa (–) como muestra la ilustración. **Asegúrese de insertarla con la cara positiva hacia fuera.**



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Caution

Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

AVISO

La pila puede explotar en caso de uso incorrecto. No la recargue, desmonte ni la arroje al fuego.

Precaución

Mantenga la pila de litio fuera del alcance de los niños. En caso de ingestión, póngase inmediatamente en contacto con un médico.

Changing the lithium battery

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu system retained by the lithium battery.

(1) Open the lid of the lithium battery compartment.

(2) Push the battery down once and pull it out from the holder.

(3) Install the lithium battery with the positive (+) side facing out. Close the lid.

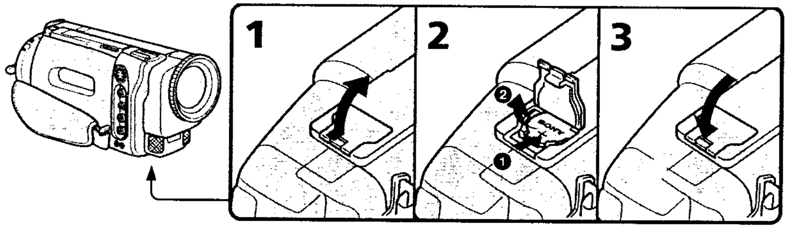
Sustitución de la pila de litio

Al sustituir la pila, mantenga conectado el paquete de batería u otra fuente de alimentación. En caso contrario, será necesario volver a ajustar en el sistema de menú la fecha, hora y otros elementos que se mantienen gracias a la pila de litio.

(1) Abra la tapa del compartimiento de la pila de litio.

(2) Presione hacia abajo la pila una vez y sáquela del portapila.

(3) Instale la pila de litio con la cara positiva (+) hacia fuera. Cierre la tapa.



Resetting the date and time

You can set the date and time in the menu system.

(1) Press MENU to display the menu in the viewfinder.

(2) Turn the control dial to highlight CLOCK SET, and press the control dial to select it.

(3) Turn the control dial to adjust the year, and then press the control dial.

(4) Set the month, day, hour, and minutes by turning the control dial and then pressing the control dial.

(5) Press MENU to erase the menu display.

Reajuste de la fecha y hora

Es posible ajustar la fecha y la hora en el sistema de menú.

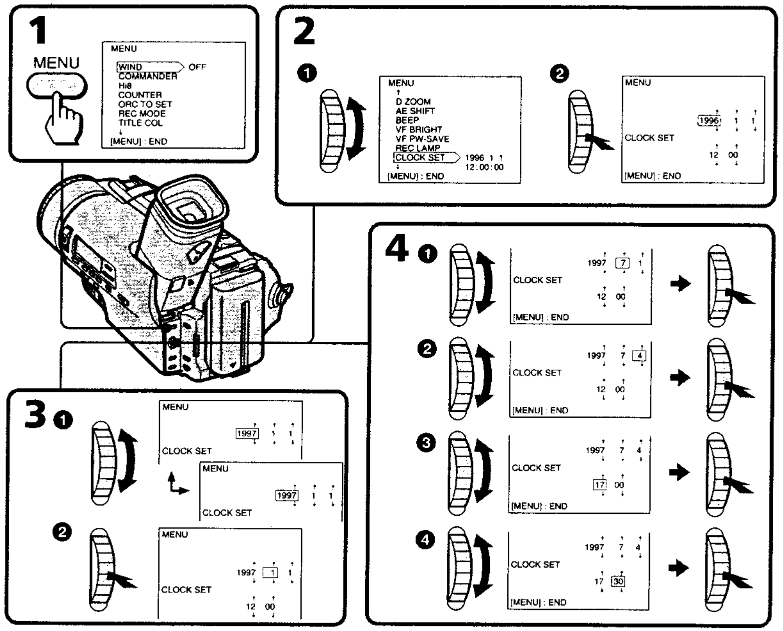
(1) Pulse MENU para visualizar el menú en el visor electrónico.

(2) Gire el dial de control para resaltar CLOCK SET, y púlselo para seleccionarlo.

(3) Gire el dial de control para ajustar el año y, a continuación, púlselo.

(4) Ajuste el mes, día, hora y minutos girando el dial de control y, a continuación, pulsándolo.

(5) Pulse MENU para que desaparezca el menú.


1
MENU
MENU
WIND OFF
COMMANDER
Hi8
COUNTER
ORC TO SET
REC MODE
TITLE COL
[MENU] : END
2
❶
MENU
D ZOOM
AE SHIFT
BEEP
VF BRIGHT
VF PW-SAVE
REC LAMP
CLOCK SET 1996 1 1 12:00:00
[MENU] : END
❷
MENU
1996 1 1
CLOCK SET
12 00
[MENU] : END
3 ❶
MENU
1997 1 1
CLOCK SET
MENU
1997 1 1
CLOCK SET
❷
MENU
1997 1 1
CLOCK SET
12 00
4 ❶
1997 7 1
CLOCK SET
12 00
[MENU] : END
❷
1997 7 4
CLOCK SET
12 00
[MENU] : END
❸
1997 7 4
CLOCK SET
17 00
[MENU] : END
❹
1997 7 4
CLOCK SET
17 30
[MENU] : END

To correct the date and time setting

Repeat the above procedure.

Para corregir el ajuste de fecha y hora

Repita el procedimiento anterior.

To check the preset date and time

Press DATE to display the date indicator in the viewfinder.
Press TIME to display the time indicator.
When you press the same button again, the indicator goes off.

The year indicator changes as follows:

1996 ←→ 1997 ←— ···· —→ 2029

Note on the time indicator

The internal clock of this camcorder operates on a 24-hour cycle.

Para comprobar la fecha y hora predefinidas

Pulse DATE para que aparezca el indicador de fecha en el visor electrónico.
Pulse TIME para que aparezca el indicador de hora.
Si vuelve a pulsar el mismo botón, el indicador se desactivará.

El indicador de año cambia de la siguiente forma:

1996 ←→ 1997 ←— ···· —→ 2029

Nota sobre el indicador de hora

El reloj interno de esta videocámara emplea el ciclo de 24 horas.

Usable cassettes and playback modes

Selecting cassette types

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures.
You can use Hi8 video and standard 8 mm cassettes. When you want to record in the Hi8 system, use only Hi8 video cassettes. You cannot record on standard 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using a standard 8 mm video recorder/player, you should record the tape on a standard 8 mm system.
If you want to use a Hi8 cassette with the standard 8 mm video recorder system, set Hi8 to OFF in the menu system before recording.

To play back in	Record using cassette type	Set Hi8 setting to
Hi8	**Hi8**	AUTO
Standard 8	**Hi8**	OFF
	8	AUTO (or OFF)

Videocassettes utilizables y modos de reproducción

Selección de los tipos de videocassette

Este sistema Hi8 se ha desarrollado a partir del sistema de 8 mm estándar para proporcionar imágenes de calidad superior.
Es posible emplear videocassettes Hi8 y de 8 mm estándar. Si desea grabar en el sistema Hi8, utilice sólo videocassettes Hi8. No es posible grabar en videocassettes de 8 mm estándar en el sistema Hi8.
Si va a reproducir la cinta en una videograbadora/reproductora de 8 mm estándar, deberá grabar dicha cinta en un sistema de 8 mm estándar.
Si desea utilizar un videocassette Hi8 con el sistema de videograbadora de 8 mm estándar, ajuste Hi8 en OFF en el sistema de menú antes de realizar la grabación.

Para reproducir en	Grabe con un videocassette de tipo	Realice el ajuste de Hi8 en
Hi8	**Hi8**	AUTO
8 estándar	**Hi8**	OFF
	8	AUTO (u OFF)

When you play back

The playback mode (SP/LP or Hi8/standard 8 mm) is selected automatically according to the format in which the tape has been recorded. The quality of the recorded picture in LP mode, however, will not be as good as that in SP mode.

Note on AFM HiFi stereo

When you play back a tape, the sound will be in monaural if:

- You record the tape using this camcorder, then play it back on an AFM HiFi monaural video recorder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on this camcorder.

Recording mode

When you play back a tape, the SP/LP indicator in the viewfinder shows the recording mode LP/SP.

Foreign 8 mm video

Because the TV colour systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to the list of "Using your camcorder abroad" to check the TV colour system of foreign countries.

Playing back an NTSC-recorded tape

You can play back tapes recorded in the NTSC video system using the SP mode on the viewfinder of this camcorder. If the tape is recorded in the AFM HiFi system, the AFM HiFi sound is reproduced. However, note that the following will occur during playback of an NTSC-recorded tape.

- When playing back a tape on a TV screen, you may not get the original colour depending on the TV.
- You cannot play back a tape recorded in NTSC video system with LP mode neither on the viewfinder nor on a TV screen.
- If a tape has portions recorded in PAL and NTSC video systems, the tape counter reading is not correct. This discrepancy is due to the difference between the counting cycle of the two video systems.
- You cannot edit the NTSC-recorded tape onto another VCR.
- When you play back on a Multi System TV, set NTSC PB to the desired mode in the menu system.

Al reproducir

El modo de reproducción (SP/LP o Hi8/8 mm estándar) se selecciona automáticamente en función del formato de grabación de la cinta. La calidad de las imágenes grabadas en modo LP no será tan buena como en modo SP.

Nota sobre el sistema estéreo AFM HiFi

Al reproducir una cinta, el sonido será monofónico si:

- Graba la cinta en esta videocámara y después la reproduce en una videograbadora/reproductora monofónica AFM HiFi.
- Graba la cinta en una videograbadora monofónica AFM HiFi y después la reproduce en esta videocámara.

Modo de grabación

Al reproducir una cinta, el indicador SP/LP del visor electrónico muestra el modo de grabación LP/SP.

Videocassettes de 8 mm extranjeros

Debido a que los sistemas de televisión en color varían en función del país, es posible que no pueda reproducir cintas extranjeras previamente grabadas. Consulte la lista que aparece en el apartado "Uso de la videocámara en el extranjero" para ver el sistema de televisión en color de otros países.

Reproducción de cintas grabadas en el sistema NTSC

Es posible reproducir cintas grabadas en el sistema de vídeo NTSC con el modo SP en el visor electrónico de esta videocámara. Si la cinta se ha grabado en el sistema AFM HiFi, se reproducirá el sonido AFM HiFi. No obstante, tenga en cuenta que durante la reproducción de cintas grabadas en el sistema NTSC se producirá lo siguiente:

- Si reproduce cintas en la pantalla del televisor, es posible que no obtenga el color original en función del televisor.
- No es posible reproducir cintas grabadas en el sistema de vídeo NTSC con el modo LP ni en el visor electrónico ni en la pantalla del televisor.
- Si la cinta presenta partes grabadas en los sistemas de vídeo PAL y NTSC, la lectura del contador de cinta no será correcta. Esta incorrección se debe a la diferencia entre el ciclo de conteo de los dos sistemas de vídeo.
- No es posible editar la cinta grabada en el sistema NTSC en otra videograbadora.
- Si realiza la reproducción en un televisor de sistema múltiple, ajuste NTSC PB en el sistema de menú en el modo que desee.

Tips for using the battery pack

This section shows you how you can get the most out of your battery pack.

Preparing the battery pack

Always carry additional batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery life is shorter in a cold environment

Battery efficiency is decreased, and the battery will be used up more quickly, if you are recording in a cold environment.

To save battery power

Turn STANDBY down when not recording to save battery power.
A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

When to replace the battery pack

While you are using your camcorder, the remaining battery indicator in the viewfinder decreases gradually as battery power is used up. When you use the NP-F530/F730 "InfoLIHTIUM" battery, the minute indicators appear with the remaining battery indicator while recording.

Consejos para el uso del paquete de batería

En esta sección se describe cómo obtener el máximo rendimiento del paquete de batería.

Preparación del paquete de batería

Tenga siempre a disposición pilas adicionales

Tenga a disposición suficientes pilas como para poder alimentar la videocámara el doble o el triple del tiempo planeado.

La duración del paquete se reduce en ambientes fríos

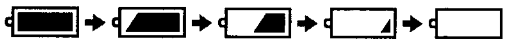
La eficacia del paquete disminuirá y se agotará con mayor rapidez, cuando grabe en ambientes fríos.

Para ahorrar energía del paquete

Gire STANDBY hacia abajo cuando no grabe con el fin de ahorrar la energía del paquete.
Es posible obtener una transición uniforme entre escenas aunque detenga y vuelva a iniciar la grabación. Mientras sitúa el objeto, selecciona un ángulo o mira por el objetivo del visor electrónico, dicho objetivo se desplaza automáticamente, con lo que utiliza la energía del paquete. Este también se emplea al insertar o expulsar una cinta.

Cuándo sustituir el paquete de batería

Mientras emplea la videocámara, el indicador de batería restante del visor electrónico disminuye gradualmente a medida que se agota el paquete. Cuando utilice la pila NP-F530/F730 "InfoLIHTIUM", los indicadores de los minutos aparecen junto con el indicador de batería restante durante la grabación.



When the remaining battery indicator reaches the lowest point, the ▭ indicator appears and starts flashing in the viewfinder. When you use the NP-F530/F730 battery, the ▭ indicator may flash even if there are still 5 to 10 minutes of charge remaining.
When the ▭ indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, set the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain a smooth transition between scenes after the battery pack has been replaced.

Notes on the rechargeable battery pack

Caution

Never leave the battery pack in temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.

The battery pack heats up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern, and is normal.

About ⓘ *InfoLITHIUM* batteries

The InfoLITHIUM is a lithium ion battery pack which can exchange data with compatible video equipment about its battery consumption. Sony recommends that you use the InfoLITHIUM battery pack with video equipment having the ⓘ *InfoLITHIUM* mark.

When you use this battery pack with video equipment having the ⓘ *InfoLITHIUM* mark, the video equipment will indicate the remaining battery time in minutes*. However, if you use it with video equipment not having this mark, the remaining battery capacity will not be indicated in minutes.

* The indication may not be accurate depending on the condition and environment which the equipment is used under. If the indication is not accurate, use the battery pack completely and then charge it fully. The indication will become accurate. However, the indication may not become accurate if you use or leave the battery pack in a warm place for a long time, or after you have used the battery pack many times.

Cuando el indicador de batería restante alcance el punto más bajo, aparecerá el indicador ▭ y comenzará a parpadear en el visor electrónico. Si utiliza la pila NP-F530/F730, es posible que el indicador ▭ parpadee aunque haya una carga restante de 5 a 10 minutos.
Si el parpadeo del indicador ▭ del visor electrónico pasa de lento a rápido durante la grabación, ajuste el interruptor POWER de la videocámara en OFF y sustituya el paquete de batería. Deje la cinta en la videocámara para obtener una transición uniforme entre escenas después de haber sustituido el paquete de batería.

Notas sobre el paquete de batería recargable

Precaución

No exponga nunca el paquete a temperaturas superiores a 60°C (140°F), como en un automóvil aparcado al sol o bajo la luz solar directa.

Calentamiento del paquete de batería

Durante los procesos de carga y grabación, el paquete de batería se calienta. Esto se debe a la energía generada y a cambios químicos producidos en el interior del paquete. Esto no es motivo de preocupación, ya que es normal.

Paquete de batería ⓘ *InfoLITHIUM*

InfoLITHIUM es un paquete de batería de ion de litio que puede intercambiar datos con equipos de vídeo compatibles sobre su consumo de energía. Sony recomienda el uso de paquetes de batería InfoLITHIUM con equipos de vídeo que presenten la marca ⓘ *InfoLITHIUM*.

Cuando emplee este paquete de batería con un equipo de vídeo que presente la marca ⓘ *InfoLITHIUM*, éste indicará el tiempo restante de energía en minutos*. No obstante, si lo utiliza con un equipo de vídeo que no presente dicha marca, la capacidad de energía restante no se indicará en minutos.

* La indicación puede no mostrarse con precisión en función de la condición y del entorno en los que emplee el equipo. Si la indicación no se muestra con precisión, agote el paquete de batería y, a continuación, cárguelo por completo; de esta forma, dicha indicación será precisa. Sin embargo, es posible que la indicación no llegue a mostrarse con precisión si emplea o deja el paquete de batería en un lugar cálido durante mucho tiempo, o después de haberlo utilizado muchas veces.

Battery pack care

- **Remove the battery pack from the camcorder after using it,** and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. This shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery pack right before using the camcorder.

The switch on the battery pack

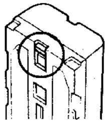
This switch is provided so that you can mark the charged battery pack. Set the switch to the "green mark" position when charging is completed. (When removed from the charging adaptor, the switch exposes the green mark. When removed from your camcorder, no mark is indicated.)

Cuidados del paquete de batería

- Extraiga el paquete de la videocámara después de usarlo y guárdelo en un lugar fresco. Mientras el paquete está instalado en la videocámara, una pequeña cantidad de corriente fluye hacia ésta aunque el interruptor POWER esté ajustado en OFF. Esto reduce la duración del paquete.
- El paquete de batería siempre se descargará aunque no lo utilice después de haberlo cargado. Por tanto, debe cargarse inmediatamente antes de emplear la videocámara.

Interruptor del paquete de batería

Este interruptor posibilita marcar el paquete de batería cargado. Ajuste el interruptor en la posición de la "marca verde" una vez finalizado el proceso de carga. (Al retirarse del adaptador de carga, el interruptor muestra la marca verde, mientras que al retirarse de la videocámara no muestra ninguna marca.)



The life of the battery pack

If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging temperature

You should charge batteries at temperatures from 10°C to 30°C (from 50°F to 86°F). Lower temperatures require a longer charging time.

Notes on charging

A brand-new battery pack

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

Recharge the battery pack whenever you like

You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. Then recharge the battery pack before use.

Duración del paquete de batería

Si el indicador de batería parpadea rápidamente inmediatamente después de encender la videocámara provista de un paquete de batería completamente cargado, éste deberá sustituirse por otro nuevo completamente cargado.

Temperatura de carga

El paquete debe cargarse a temperaturas comprendidas entre 10°C y 30°C (50°F a 86°F). Las temperaturas bajas requieren un tiempo de carga superior.

Notas sobre la carga

Paquetes de batería nuevos

Los paquetes de baterías nuevos no están cargados. Antes de emplearlos, es necesario cargarlos por completo.

Recargue el paquete de batería cuando desee

No es preciso descargarlo antes de recargarlo. El paquete se descargará si lo ha cargado por completo pero no lo ha utilizado durante un largo período de tiempo. En este caso, recárguelo antes de usarlo.

Tips for using the battery pack

Notes on the terminals

If the terminals (metal parts on the back) are not clean, the battery charge duration will be shortened.

When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Do not put any foreign objects such as dust or sand in the ⊕ and ⊖ terminals.

Be sure to observe the following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

Notes on the battery case

- **Use only with alkaline batteries. You cannot use the battery case with manganese batteries or LR6 (size AA) rechargeable NiCd batteries.**
- **Using with Sony alkaline batteries is preferable.**
- Battery life is remarkably shorter in a cold environment (lower than 10°C/50°F).
- Keep the metal part clean. If it gets dirty, wipe it with a soft cloth.
- Do not disassemble or try to disassemble the battery case.
- Do not expose the battery case to any mechanical shock.
- During recording, the battery case heats up. This is not cause for concern.
- Prevent the electrode in the battery case from coming in contact with a metal object.
- If you will not use the battery case for a long time, detach the battery case from the camcorder and remove the batteries from the battery case.

Consejos para el uso del paquete de batería

Notas sobre los terminales

Si los terminales (componentes metálicos situados en la parte trasera) no están limpios, la duración de la carga se reducirá.

Si los terminales no están limpios o si no ha utilizado el paquete de batería durante mucho tiempo, instálelo y extráigalo varias veces. De esta forma mejorará la condición de contacto. No coloque ningún objeto extraño como polvo o arena en los terminales ⊕ y ⊖.

Asegúrese de tener en cuenta lo siguiente:

- Mantenga el paquete de batería alejado del fuego.
- Manténgalo seco.
- No lo abra ni lo desmonte.
- No lo exponga a golpes mecánicos.

Notas sobre el estuche de pilas

- **Empléelo sólo con pilas alcalinas. No es posible utilizar el estuche con pilas de manganeso ni con pilas recargables de níquel-cadmio tipo LR6 (tamaño AA).**
- **Utilice preferiblemente pilas alcalinas Sony.**
- La duración de las pilas se reduce notablemente en ambientes fríos (temperaturas inferiores a 10°C/50°F).
- Mantenga limpio el componente metálico. Si se ensucia, límpielo con un paño suave.
- No intente desmontar el estuche de pilas.
- No exponga el estuche de pilas a golpes mecánicos.
- Durante la grabación, el paquete de pilas se calienta. Esto es normal.
- Evite que el electrodo del estuche de pilas entre en contacto con objetos metálicos.
- Si no va a utilizar el estuche durante mucho tiempo, extráigalo de la videocámara y retire las pilas del mismo.

Notes on alkaline batteries

To avoid possible damage from battery leakage or corrosion, observe the following.

- Be sure to insert the batteries in the correct direction.
- Alkaline batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- The batteries slowly discharge while not in use.
- Do not use a battery that is leaking.

If battery leakage occurred

- Wipe off the liquid in the battery case carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

Notas sobre las pilas alcalinas

Para evitar posibles daños producidos por fugas o corrosión, tenga en cuenta lo siguiente:

- Asegúrese de insertar las pilas en el sentido correcto.
- Las pilas alcalinas no son recargables.
- No emplee pilas nuevas junto con viejas.
- No emplee diferentes tipos de pilas.
- Las pilas se descargan lentamente cuando no las utilice.
- No emplee pilas que presenten fugas.

Si se producen fugas

- Limpie cuidadosamente el líquido del estuche de pilas antes de insertar las pilas.
- Si toca el líquido, límpieselo con agua.
- Si el líquido entra en contacto con los ojos, límpieselos con abundante agua y consulte con un médico.

Maintenance information and precautions

Información y precauciones sobre mantenimiento

Moisture condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Please, take the following precautions.

Inside the camcorder

If there is moisture inside the camcorder, the beep sounds and the 💧 indicator flashes. If this happens, none of the functions except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When ⏏ indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour.

Condensación de humedad

Si traslada la videocámara directamente de un lugar frío a otro cálido, es posible que se condense humedad en su interior, en la superficie de la cinta o sobre el objetivo. En este caso, la cinta puede adherirse al tambor del cabezal y dañarse o la unidad puede no funcionar correctamente. Para evitar posibles daños en estas circunstancias, la videocámara está equipada con sensores de humedad. Tome las siguientes precauciones.

Interior de la videocámara

Si se condensa humedad en el interior de la videocámara, la unidad emitirá un pitido y el indicador 💧 parpadeará. Si esto ocurre, ninguna de las funciones se activará, excepto la de expulsión de videocassettes. Abra el compartimiento de videocassettes, apague la videocámara y no la utilice durante 1 hora aproximadamente. Si el indicador ⏏ también parpadea, significa que hay un videocassette insertado en la videocámara. Expúlselo, apague la videocámara y tampoco utilice el videocassette durante 1 hora aproximadamente.

On the lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to prevent moisture condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

(1) Be sure to tightly seal the plastic bag containing the camcorder.

(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

Sobre el objetivo

Si se condensa humedad en el objetivo, no aparecerá ningún indicador y la imagen se atenuará. Desactive la alimentación y no emplee la videocámara durante 1 hora aproximadamente.

Cómo evitar la condensación de humedad

Cuando traslade la videocámara de un lugar frío a otro cálido, introdúzcala en una bolsa de plástico y deje que se adapte a las condiciones de la sala durante algún tiempo.

(1) Asegúrese de cerrar herméticamente la bolsa de plástico.

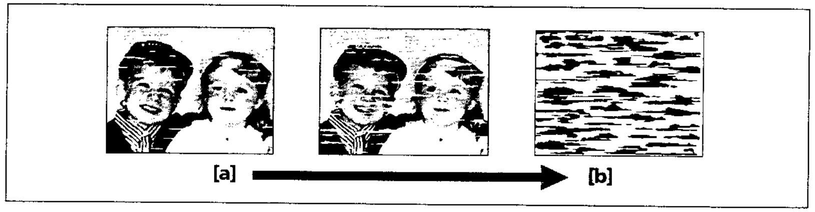
(2) Retire la bolsa cuando la temperatura de su interior haya alcanzado la temperatura que la rodea (después de aproximadamente 1 hora).

Video head cleaning

To ensure normal recording and clear pictures, clean the video heads. When the ⊗ indicator and "📼 CLEANING CASSETTE" message appear one after another in the viewfinder or playback pictures are "noisy" or hardly visible, the video heads may be dirty.

Limpieza de los cabezales de vídeo

Para garantizar grabaciones normales e imágenes nítidas, limpie los cabezales de vídeo. Si el indicador ⊗ y el mensaje "📼 CLEANING CASSETTE" aparecen uno detrás del otro en el visor electrónico o si las imágenes de reproducción presentan "ruido" o apenas pueden verse, es posible que los cabezales de vídeo estén sucios.



[a] Slightly dirty
[b] Very dirty

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy," repeat the cleaning. (Do not repeat cleaning more than 5 times in one session.)

[a] Ligeramente sucios
[b] Muy sucios

Si esto ocurre, limpie los cabezales de vídeo con el cassette limpiador V8-25CLH de Sony (no suministrado). Si la imagen presenta "ruido" después de comprobarla, repita la limpieza. (No realice la limpieza más de 5 veces en una misma sesión.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

Removing dust from inside the viewfinder (CCD-TR2200E only)

(1) Remove the screw with a screwdriver (not supplied). Then, while sliding the RELEASE knob, turn the eyecup in the direction of the arrow and pull it out.
(2) Clean the surface with a commercially available blower.

Precaución

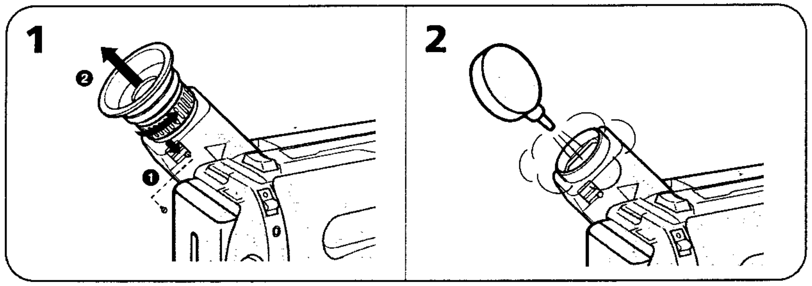
No utilice cassettes limpiadores de tipo húmedo disponibles en las tiendas del ramo, ya que pueden dañar los cabezales de vídeo.

Nota

Si el cassette limpiador V8-25CLH no se encuentra disponible en su zona, póngase en contacto con el proveedor Sony más próximo.

Eliminación del polvo del interior de la videocámara (sólo CCD-TR2200E)

(1) Extraiga el tornillo con un destornillador (no suministrado). A continuación, mientras desliza el mando RELEASE, gire el ocular en la dirección de la flecha y sáquelo.
(2) Limpie la superficie con un soplador disponible en las tiendas del ramo.

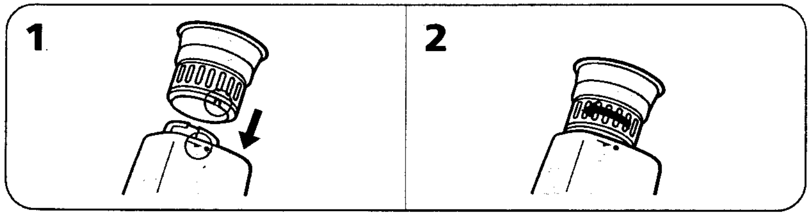


To reattach the eyecup

(1) Align the groove on the eyecup with the • mark on the barrel.
(2) Turn the eyecup in the direction of the arrow. Then replace the screw.

Para volver a fijar el ocular

(1) Alinee la ranura del ocular con la marca • del cilindro.
(2) Gire el ocular en la dirección de la flecha y, a continuación, vuelva a colocar el tornillo.



Maintenance information and precautions

Precautions

Camcorder operation

- Operate the camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid get inside the casing, unplug the camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camcorder.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.

On handling tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape and if the recording tab is in or out.

Camcorder care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Información y precauciones sobre mantenimiento

Precauciones

Empleo de la videocámara

- Alimente la videocámara con 7,2 V (paquete de batería) o con 8,4 V (adaptador de alimentación de CA).
- Para el funcionamiento con CC o CA, emplee los accesorios recomendados en este manual.
- Si cae algún objeto sólido o se introduce líquido en la unidad, desenchúfela y haga que un proveedor Sony la revise antes de volver a utilizarla.
- No la emplee con brusquedad y evite los golpes mecánicos. Tenga especial cuidado con el objetivo.
- Mantenga el interruptor POWER ajustado en OFF cuando no utilice la videocámara.
- No cubra la videocámara cuando la utilice, ya que puede recalentarse internamente.
- Mantenga la videocámara alejada de campos magnéticos intensos y de vibraciones mecánicas.

Manejo de las cintas

No inserte nada en los orificios pequeños situados en la parte posterior del videocassette, ya que estos orificios se emplean para detectar el tipo de cinta, su grosor y si la lengüeta de grabación se encuentra dentro o fuera.

Cuidados de la videocámara

- Si no va a utilizar la videocámara durante un largo período de tiempo, desconecte la fuente de alimentación y extraiga la cinta. Active la alimentación periódicamente, emplee las secciones de cámara y de reproductor y reproduzca una cinta durante unos 3 minutos.
- Limpie el objetivo con un cepillo suave para eliminar el polvo. Si hay huellas dactilares en dicho objetivo, elimínelas con un paño suave.
- Limpie el exterior de la videocámara con un paño seco y suave, o bien ligeramente humedecido con una solución detergente poco concentrada. No utilice ningún tipo de disolventes, ya que pueden dañar el acabado.

AC power adaptor

Charging

- Use only a lithium ion type battery pack.
- Place the battery pack on a flat surface without vibration during charging.
- The battery pack will get hot during charging. This is normal.

Others

- Unplug the unit from the mains when not in use for a long time. To disconnect the mains lead, pull it out by the plug. Never pull the mains lead itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC mains lead forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Adaptador de alimentación de CA

Carga

- Emplee únicamente paquetes de batería de tipo ion de litio.
- Durante el proceso de carga, sitúe el paquete de batería sobre una superficie plana sin vibraciones.
- El paquete de batería se calentará durante el proceso de carga. Esto es normal.

Otros

- Desenchufe la unidad de la toma de corriente si no la va a utilizar durante un largo período de tiempo. Para desconectar el cable de alimentación, tire del enchufe, nunca del propio cable.
- No emplee la unidad si ésta se ha caído o está dañada; tampoco la utilice con un cable dañado.
- No doble a la fuerza el cable de alimentación de CA, ni sitúe objetos pesados sobre él, ya que si lo hace el cable se dañará y puede causar incendios o descargas eléctricas.
- Asegúrese de que ningún objeto metálico entre en contacto con los componentes metálicos de la placa de conexión. Si esto ocurre, puede producirse un cortocircuito y dañarse la unidad.
- Mantenga siempre limpios los contactos metálicos.
- No desmonte la unidad.
- No aplique golpes mecánicos ni deje caer la unidad.
- Mientras emplee la unidad, particularmente durante el proceso de carga, manténgala alejada de receptores de AM y de equipos de vídeo, ya que producirá interferencias en la recepción de AM y en el funcionamiento del vídeo.
- La unidad se calienta durante el uso. Esto es normal.
- No sitúe la unidad en lugares:
  - Extremadamente cálidos o fríos
  - Polvorientos o sucios
  - Muy húmedos
  - Con vibraciones

Si surge cualquier dificultad, desenchufe la unidad y póngase en contacto con el proveedor Sony más próximo.

Using your camcorder abroad

Each country has its own electric and TV colour systems. Before using your camcorder abroad, check the following points.

Power sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Difference in colour systems

This camcorder is a PAL system-based camcorder. If you want to view the playback picture on a TV, it must be a PAL system-based TV.
Check the following list.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system countries
Bulgaria, Czech Republic, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Uso de la videocámara en el extranjero

Cada país dispone de sus propios sistemas de televisión en color y de electricidad. Antes de usar la videocámara en el extranjero, compruebe los puntos méncionados a continuación.

Fuentes de alimentación

Puede emplear la videocámara en cualquier país con el adaptador de alimentación de CA suministrado dentro del margen de 110 V a 240 V CA, 50/60 Hz.

Diferencias entre sistemas de color

Esta videocámara está basada en el sistema PAL. Si desea visualizar la imagen de reproducción en un televisor, éste debe estar basado en el sistema PAL.
Consulte la siguiente lista:

Países con sistema PAL
Australia, Austria, Bélgica, China, Dinamarca, Finlandia, Alemania, Gran Bretaña, Holanda, Hong Kong, Italia, Kuwait, Malasia, Nueva Zelanda, Noruega, Portugal, Singapur, España, Suecia, Suiza, Tailandia, etc.

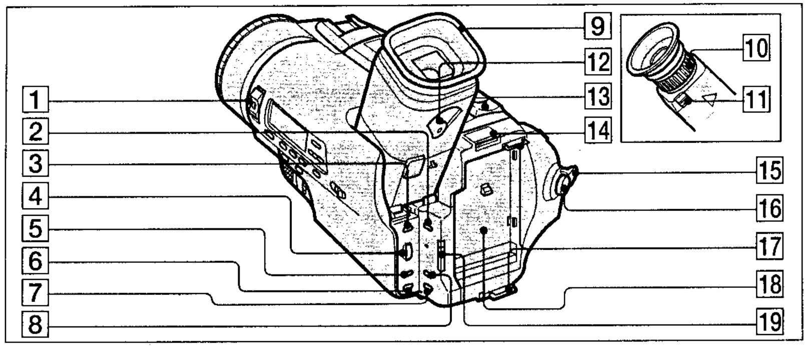
País con sistema PAL-M
Brasil

Países con sistema PAL-N
Argentina, Paraguay, Uruguay

Países con sistema NTSC
Islas Bahamas, Bolivia, Canadá, Centroamérica, Chile, Colombia, Ecuador, Jamaica, Japón, Corea, Méjico, Perú, Surinám, Taiwan, Islas Filipinas, Estados Unidos, Venezuela, etc.

Países con sistema SECAM
Bulgaria, República Checa, Francia, Guayana, Hungría, Irán, Iraq, Mónaco, Polonia, Rusia, República Eslovaca, Ucrania, etc.

Identifying the parts / Identificación de los componentes



1 **POWER switch** (p.13)

2 **STEADY SHOT switch** (p.56)

3 **MENU button** (p.31)

4 **Control dial** (p.31)

5 **PICTURE EFFECT button** (p.42)

6 **DIGITAL EFFECT button (CCD-TR3300E only)** (p.43)

7 **TITLE button** (p.53)

8 **16:9WIDE button** (p.50)

9 **Eyecup** (p.18)

10 **Viewfinder lens adjustment ring (CCD-TR2200E only)** (p.14)

11 **RELEASE knob (CCD-TR2200E only)** (p.101)

12 **Viewfinder lens adjustment lever (CCD-TR3300E only)** (p.14)

13 **Power zoom lever** (p.16)

14 **BATT (battery) PUSH button** (p.11)

15 **STANDBY switch** (p.13, 14)

16 **START/STOP button** (p.13, 14)

17 **Hooks for shoulder strap** (p.122)

18 **Battery mounting surface**

19 **START/STOP MODE switch** (p.51)

1 **Interruptor POWER** (pág.13)

2 **Interruptor STEADY SHOT** (pág.56)

3 **Botón MENU** (pág.31)

4 **Dial de control** (pág.31)

5 **Botón PICTURE EFFECT** (pág.42)

6 **Botón DIGITAL EFFECT (sólo CCD-TR3300E)** (pág.43)

7 **Botón TITLE** (pág.53)

8 **Botón 16:9WIDE** (pág.50)

9 **Ocular** (pág.18)

10 **Anillo de ajuste del objetivo del visor electrónico (sólo CCD-TR2200E)** (pág.14)

11 **Mando RELEASE (sólo CCD-TR2200E)** (pág.101)

12 **Palanca de ajuste del objetivo del visor electrónico (sólo CCD-TR3300E)** (pág.14)

13 **Palanca de alimentación de zoom** (pág.16)

14 **Botón BATT (batería) PUSH** (pág.11)

15 **Interruptor STANDBY** (pág.13, 14)

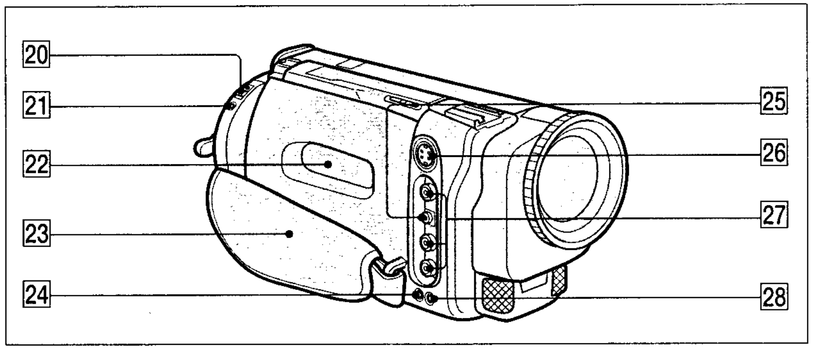
16 **Botón START/STOP** (pág.13, 14)

17 **Ganchos para el asa de hombro** (pág.122)

18 **Superficie de montaje de batería**

19 **Interruptor START/STOP MODE** (pág.51)

Identifying the Parts / Identificación de los componentes



20 **EJECT switch** (p.12)

21 **REMOTE LANC l control jack**
l stands for Local Application Control Bus System. The l control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

22 **Cassette compartment** (p.12)

23 **Grip strap** (p.18)

24 **∩ (headphone) jack** (p.24)

25 **RFU DC OUT (RFU adaptor DC output) jack** (p.22)

26 **S VIDEO jack** (p.21, 22)

27 **VIDEO/AUDIO jacks** (p.21, 22)

28 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.

20 **Interruptor EJECT** (pág.12)

21 **Toma de control REMOTE LANC l**
l significa Sistema de control bus de aplicación local (Local Application Control Bus System).
La toma de control l se utiliza para controlar el transporte de cinta del equipo de vídeo y de periféricos conectados al mismo. Esta toma presenta la misma función que la toma indicada como CONTROL L o REMOTE.

22 **Compartimiento de videocassettes** (pág.12)

23 **Correa de fijación** (pág.18)

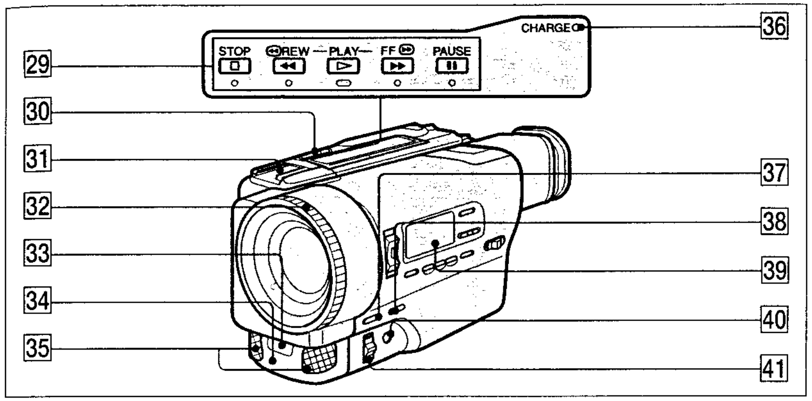
24 **Toma de auriculares ∩** (pág.24)

25 **Toma RFU DC OUT (salida de CC del adaptador RFU)** (pág.22)

26 **Toma S VIDEO** (pág.21, 22)

27 **Tomas VIDEO/AUDIO** (pág.21, 22)

28 **Toma MIC (PLUG IN POWER)**
Conecte un micrófono externo (no suministrado). Esta toma también acepta micrófonos de "enchufe de alimentación".



29 **Tape transport buttons** (p.23, 24, 25)
☐ STOP (stop)
◀◀ REW (rewind)
▷ PLAY (playback)
▶▶ FF (fastforward)
❚❚ PAUSE (pause)

30 **EDITSEARCH button** (p.20)

31 **Accessory shoe**
Supplies power to optional accessories such as a video light.

32 **Focus ring** (p.61)

33 **Remote sensor** (p.122)
Aim the Remote Commander here for remote control.

34 **Camera recording/battery lamp** (p.13)

35 **Microphone**

36 **CHARGE lamp** (p.8, 28)

37 **FADER/OVERLAP button (CCD-TR3300E only)** (p.36, 38, 39)
FADER button (CCD-TR2200E only) (p.36)

38 **BACKLIGHT button** (p.73)

39 **Display window** (p.123)

40 **PUSH AUTO button** (p.61)

41 **FOCUS switch** (p.61)

29 **Botones de transporte de cinta** (pág.23, 24, 25)
☐ STOP (parada)
◀◀ REW (rebobinado)
▷ PLAY (reproducción)
▶▶ FF (avance rápido)
❚❚ PAUSE (pausa)

30 **Botón EDITSEARCH** (pág.20)

31 **Zapata accesoria**
Suministra alimentación a accesorios opcionales, como una lámpara de vídeo.

32 **Anillo de enfoque** (pág.61)

33 **Sensor remoto** (pág.122)
Oriente el mando a distancia aquí para control remoto.

34 **Indicador de grabación/batería de cámara** (pág.13)

35 **Micrófono**

36 **Indicador CHARGE** (pág.8, 28)

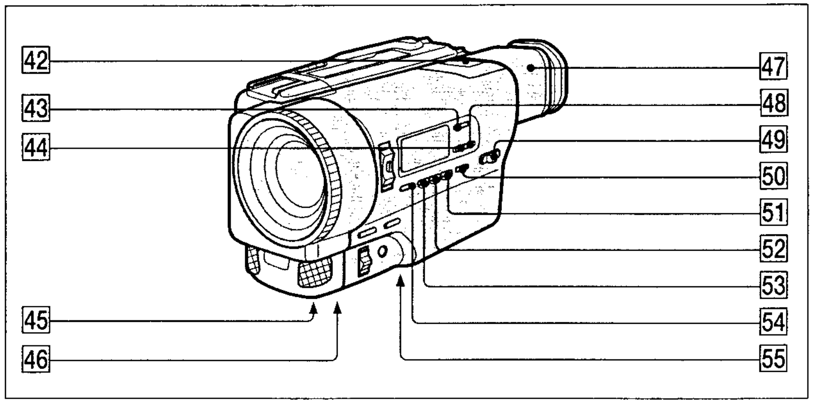
37 **Botón FADER/OVERLAP (sólo CCD-TR3300E)** (pág.36, 38, 39)
Botón FADER (sólo CCD-TR2200E) (pág.36)

38 **Botón BACKLIGHT** (pág.73)

39 **Visor principal** (pág.124)

40 **Botón PUSH AUTO** (pág.61)

41 **Interruptor FOCUS** (pág.61)



42 **Lighting aperture (CCD-TR3300E only)**

43 **COUNTER RESET button** (p.15, 47, 80)

44 **DATE button** (p.26, 35)

45 **Tripod receptacle** (p.18)

46 **Lithium battery compartment** (p.91)

47 **Viewfinder** (p.14, 101)

48 **TIME button** (p.26, 35)

49 **AUTO LOCK/HOLD switch** (p.62)

50 **WHT BAL(white balance) button** (p.76)

51 **GAIN button** (p.68)

52 **SHUTTER SPEED button** (p.68, 70)

53 **IRIS button** (p.68)

54 **PROGRAM AE button** (p.62)

55 **Handycam station connection**

42 **Apertura de iluminación (sólo CCD-TR3300E)**

43 **Botón COUNTER RESET** (pág.15, 47, 80)

44 **Botón DATE** (pág.26, 35)

45 **Receptáculo para trípode** (pág.18)

46 **Compartimiento de la pila de litio** (pág.91)

47 **Visor electrónico** (pág.14, 101)

48 **Botón TIME** (pág.26, 35)

49 **Interruptor AUTO LOCK/HOLD** (pág.62)

50 **Botón WHT BAL(balance de blancos)** (pág.76)

51 **Botón GAIN** (pág.68)

52 **Botón SHUTTER SPEED** (pág.68, 70)

53 **Botón IRIS** (pág.68)

54 **Botón PROGRAM AE** (pág.62)

55 **Conexión de estación Handycam**

To Watch the demonstration

You can watch a brief demonstration of pictures with special effects.

If the demonstration appears when you turn on the camcorder for the first time, exit the demo mode to use your camcorder. For details on the location of the buttons, refer to the pages 115 and 117.

To enter Demo mode

(1) Remove the cassette and set the POWER switch to PLAYER.
(2) Turn STANDBY up.
(3) While holding down ▷, set the POWER switch to CAMERA. Demonstration starts.

If a cassette is inserted, the demo mode will stop. Note that once you enter demo mode, this mode is retained as long as lithium battery is in place. Therefore demonstration starts automatically 10 minutes later every time you set the POWER switch to CAMERA or 10 minutes after the cassette has been removed.

To exit Demo mode

(1) Turn the POWER switch to PLAYER.
(2) Turn STANBY up.
(3) While holding down □, turn the POWER switch to CAMERA.

Para visualizar la demostración

Es posible visualizar una breve demostración de imágenes con efectos especiales.

Si la demostración aparece al encender la videocámara por primera vez, salga del modo de demostración para emplear la videocámara. Para obtener información detallada sobre la ubicación de los botones, consulte las páginas 115 y 117.

Para entrar en el modo de demostración

(1) Extraiga el videocassette y ajuste el interruptor POWER en PLAYER.
(2) Gire STANDBY hacia arriba.
(3) Mientras pulsa ▷, ajuste el interruptor POWER en CAMERA. La demostración se inicia.

Si ya hay un videocassette insertado, el modo de demostración se detendrá. Tenga en cuenta que una vez introducido el modo de demostración, éste se mantendrá siempre que no retire la pila de litio. Por tanto, la demostración se inicia automáticamente 10 minutos después cada vez que ajuste el interruptor POWER en CAMERA o 10 minutos después de haber extraído el videocassette.

Para salir del modo de demostración

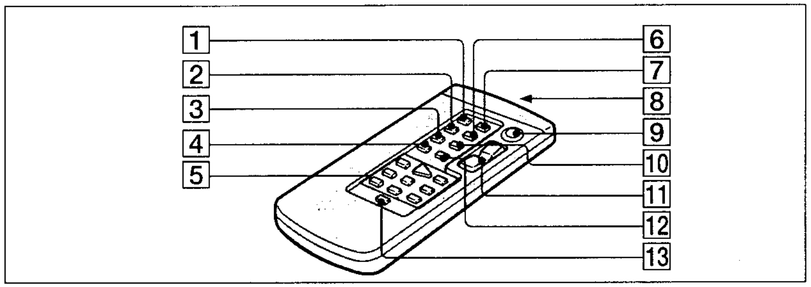
(1) Gire el interruptor POWER hasta PLAYER.
(2) Gire STANBY hacia arriba.
(3) Mientras pulsa □ , gire el interruptor POWER hasta CAMERA.

Identifying the parts

Identificación de los componentes

Remote Commander

The buttons that have the same name on the Remote Commander as on the camcorder function identically.



1 **COUNTER RESET button** (p.15, 47, 80)

2 **TIME CODE WRITE button** (p.86)

3 **INDEX MARK** (p.81)

4 **DATE SEARCH button** (p.79)

5 **Tape transport buttons** (p.23)

6 **DATA CODE button** (p.26)

7 **ZERO MEM button** (p.47, 80)

8 **Transmitter**
Point toward the remote sensor to control the camcorder after turning on the camcorder.

9 **START/STOP button** (p.13, 14)

10 **INDEX ERASE** (p.85)

11 **Power zoom button** (p.16)

12 **INDEX SEARCH button** (p.83, 84, 85)

13 **DISPLAY button** (p.24)

Mando a distancia

Los botones del mando a distancia y de la videocámara con el mismo nombre funcionan de forma idéntica.

1 **Botón COUNTER RESET** (pág.15, 47, 80)

2 **Botón TIME CODE WRITE** (p.86)

3 **INDEX MARK** (pág.81)

4 **Botón DATE SEARCH** (p.79)

5 **Botones de transporte de cinta** (pág.23)

6 **Botón DATA CODE** (pág.26)

7 **Botón ZERO MEM** (pág.47, 80)

8 **Transmisor**
Oriéntelo hacia el sensor remoto para controlar la videocámara después de encenderla.

9 **Botón START/STOP** (pág.13, 14)

10 **INDEX ERASE** (pág.85)

11 **Botón de alimentación de zoom** (pág.16)

12 **Botón INDEX SEARCH** (pág.83, 84, 85)

13 **Botón DISPLAY** (pág.24)

To prepare the Remote Commander

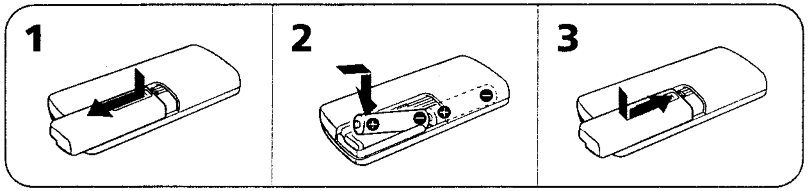
To use the Remote Commander, you must insert two R6 (size AA) batteries. Use the supplied R6 (size AA) batteries.

(1) Remove the battery cover from the Remote Commander.
(2) Insert both of the R6 (size AA) batteries with correct polarity.
(3) Put the battery cover back onto the Remote Commander.

Preparación del mando a distancia

Para emplear el mando a distancia, es necesario insertar las dos pilas R6 (tamaño AA) suministradas.

(1) Retire la cubierta del compartimiento de las pilas del mando a distancia.
(2) Inserte las dos pilas R6 (tamaño AA) con la polaridad correcta.
(3) Vuelva a colocar la cubierta en el mando a distancia.



Note on battery life

The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage

Remove the batteries when you will not use the Remote Commander for a long time.

Nota sobre la duración de las pilas

La duración de las pilas del mando a distancia es de 6 meses aproximadamente en condiciones de uso normal. Si las pilas se agotan, el mando a distancia no funcionará.

Para evitar posibles daños causados por fugas

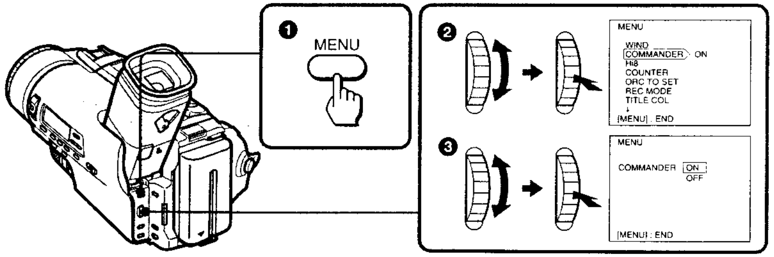
Extraiga las pilas cuando no vaya a utilizar el mando a distancia durante mucho tiempo.

To use the Remote Commander

Make sure that the COMMANDER is set to ON in the menu system on the camcorder.

Para emplear el mando a distancia

Compruebe que COMMANDER está ajustado en ON en la videocámara en el sistema de menú.

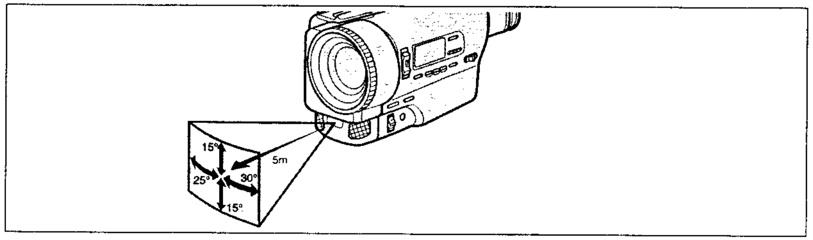


Identifying the parts

Identificación de los componentes

Remote control direction

Area controlable mediante el control remoto



Notes on the remote commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
- This camcorder works in commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Notas sobre el mando a distancia

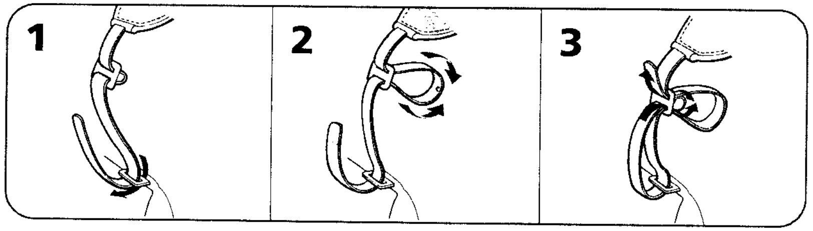
- mantenga el sensor remoto alejado de fuentes de iluminación intensas, como la luz solar directa u otras fuentes luminosas intensas. En caso contrario, el control remoto puede no ser efectivo.
- Compruebe que no hay obstáculos entre el sensor remoto de la videocámara y el mando a distancia.
- Esta videocámara funciona en modo de mando VTR 2. Los modo de mando (1, 2 y 3) se emplean para diferenciar esta videocámara de otras videograbadoras
  Sony con el fin de evitar operaciones inadecuadas del control remoto. Si emplea otra videograbadora Sony en modo de mando VTR 2, se recomienda cambiar el modo o cubrir el sensor remoto de la videograbadora con papel negro.

Attaching the shoulder strap

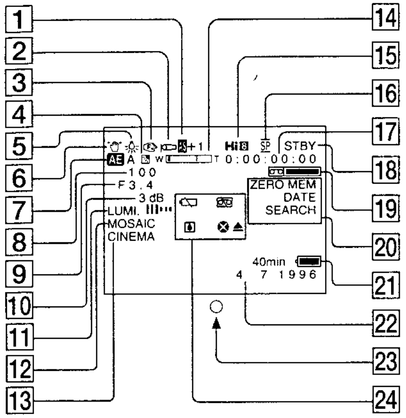
Attach the supplied shoulder strap to the hooks for the shoulder strap .

Fijación del asa de hombro

Fije el asa de hombro suministrado en los ganchos para dicho asa.



Operations indicators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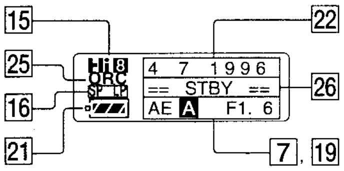
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AE A F1. 6

1 **AE Shift indicator** (p.74)

2 **WIND indicator** (p.32)

3 **Manual focusing** (p.61, 62)

4 **Backlight indicator** (p.73)

5 **White balance indicator** (p.75)

6 **Steady Shot indicator** (p.56)

7 **PROGRAM AE indicator** (p.62)

8 **Shutter speed indicator** (p.64, 68, 70)

9 **Iris indicator** (p.63, 68)

10 **Gain indicator** (p.68)

11 **FADER indicator (CCD-TR2200E)** (p.36) **Digital Effect and FADER/OVERLAP/WIPE indicator (CCD-TR3300E)** (p.36, 38, 39, 43, 44, 46)

12 **Picture Effect indicator** (p.42)

13 **Wide mode indicator** (p.50)

14 **Zoom indicator** (p.17)

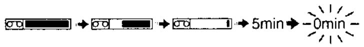
15 **Playing back or recording in Hi8 format** (p.93)

16 **Recording/playing back mode indicator** (p.94)

17 **Tape counter/RC time code indicator** (p.32, 86)

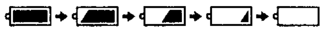
18 **Standby indicator** (p.14)

19 **Remaining tape indicator**



20 **Date search/Date scan indicator/TIME CODE WRITE indicator/ZERO MEM indicator** (p.79, 80, 86)

21 **Remaining battery indicator** (p.96)



22 **Date or Time indicator** (p.35)

23 **Recording lamp/Battery lamp** (p.13)

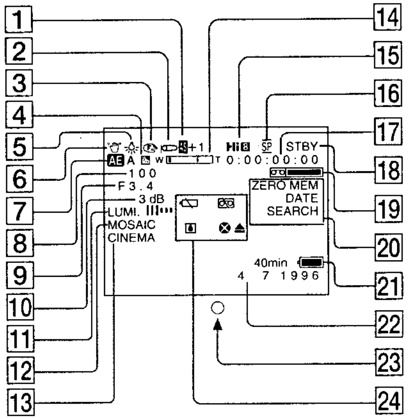
24 **Warning indicators** (p.125)

25 **ORC indicator** (p.57)

26 **Tape transport mode** (p.23, 24, 25)

Identificación de los componentes

Indicadores de operaciones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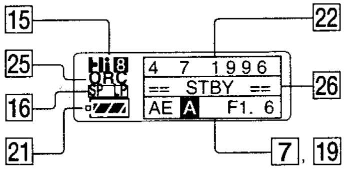
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Hi8
ORC
SP LP
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== STBY ==
AE A F1. 6

1 **Indicador de desplazamiento AE** (pág.74)

2 **Indicador WIND** (pág.32)

3 **Enfoque manual** (pág.61, 62)

4 **Indicador de iluminación de fondo** (pág.73)

5 **Indicador de balance de blancos** (pág.75)

6 **Indicador de la función Steady Shot** (pág.56)

7 **Indicador PROGRAM AE** (pág.62)

8 **Indicador de velocidad de obturación** (pág.64, 68, 70)

9 **Indicador de iris** (pág.63, 68)

10 **Indicador de ganancia** (pág.68)

11 **Indicador FADER (CCD-TR2200E)** (pág.36) **Indicador de efecto digital y FADER/OVERLAP/WIPE (CCD-TR3300E)** (pág.36, 38, 39, 43, 44, 46)

12 **Indicador de efecto de imagen** (pág.42)

13 **Indicador de modo panorámico** (pág.50)

14 **Indicador de zoom** (pág.17)

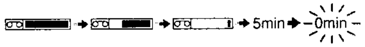
15 **Reproducción o grabación con formato Hi8** (pág.93)

16 **Indicador de modo de grabación/reproducción** (pág.94)

17 **Indicador de contador de cinta/código de tiempos RC** (pág.32, 86)

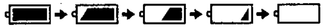
18 **Indicador de modo de espera** (pág.14)

19 **Indicador de cinta restante**



20 **Indicador de búsqueda de fechas/exploración de fechas/Indicador TIME CODE WRITE/Indicador ZERO MEM** (pág.79, 80, 86)

21 **Indicador de batería restante** (pág.96)



22 **Indicador de fecha u hora** (pág.35)

23 **Indicador de grabación/batería** (pág.13)

24 **Indicadores de aviso** (pág.125)

25 **Indicador OCR** (pág.57)

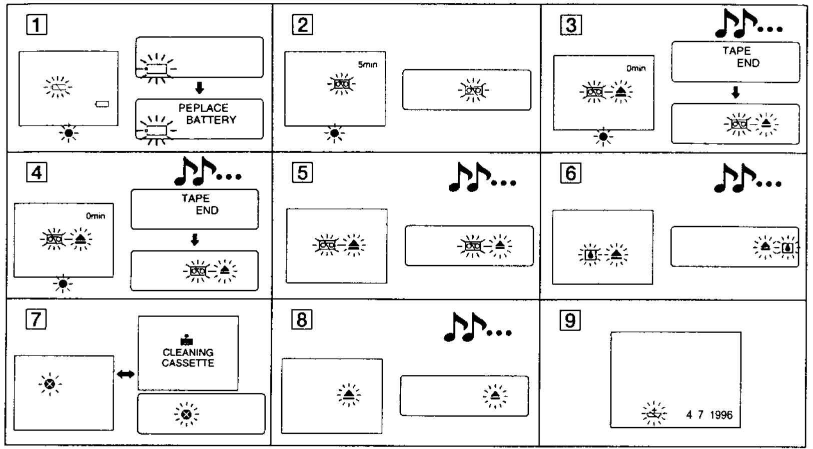
26 **Modo de transporte de cinta** (pág.23, 24, 25)

Warning indicators

If indicators flash in the viewfinder or in the display window, check the following:
♪: you can hear the beep sound when the BEEP is set to ON.

Indicadores de aviso

Si los indicadores parpadean en el visor electrónico o en el visor principal, compruebe lo siguiente:
♪: es posible escuchar el pitido si BEEP está ajustado en ON.



1 **The battery is weak or dead.**
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 **The tape is near the end.**
The flashing is slow.

3 **The tape has run out.**
The flashing becomes rapid.

4 **No tape has been inserted.**

5 **The tab on the tape is out (red).**

6 **Moisture condensation has occurred.** (p.99)

7 **The video heads may be contaminated.** (p.100)
This indicator appears only on the viewfinder.

8 **Some other trouble has occurred.**
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 **The lithium battery is weak or is not installed.** (p.90)

1 **La pila o el paquete está casi agotado o totalmente agotado.**
Parpadeo lento: La pila está casi agotada.
Parpadeo rápido: La pila está agotada.

2 **La cinta ha llegado casi al final.**
El parpadeo es lento.

3 **La cinta se ha acabado.**
El parpadeo es más rápido.

4 **No ha insertado ninguna cinta.**

5 **La lengüeta de la cinta está al descubierto (roja).**

6 **Se ha condensado humedad.** (pág.99)

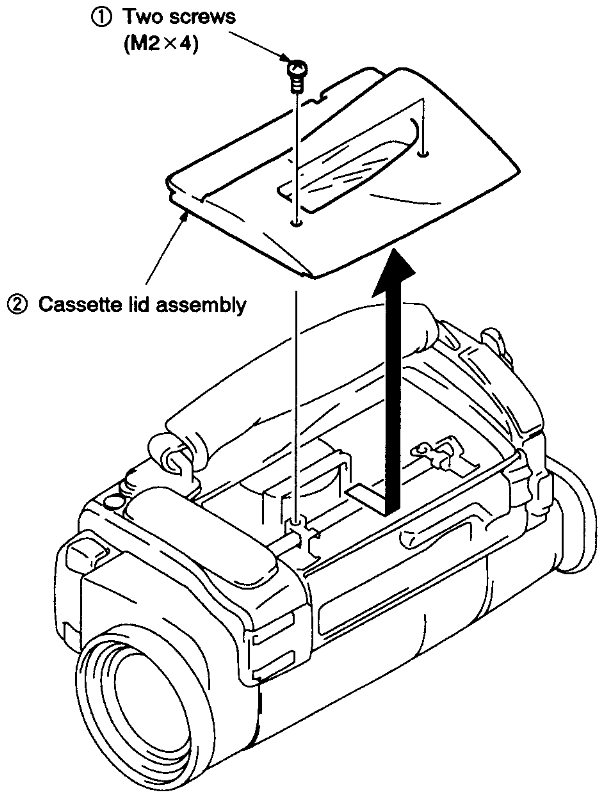
7 **Los cabezales de vídeo pueden estar sucios.** (pág.100)
Este indicador aparece sólo en el visor electrónico.

8 **Se ha producido otro tipo de problema.**
Desconecte la fuente de alimentación y póngase en contacto con un proveedor Sony o un centro de asistencia técnica local autorizado.

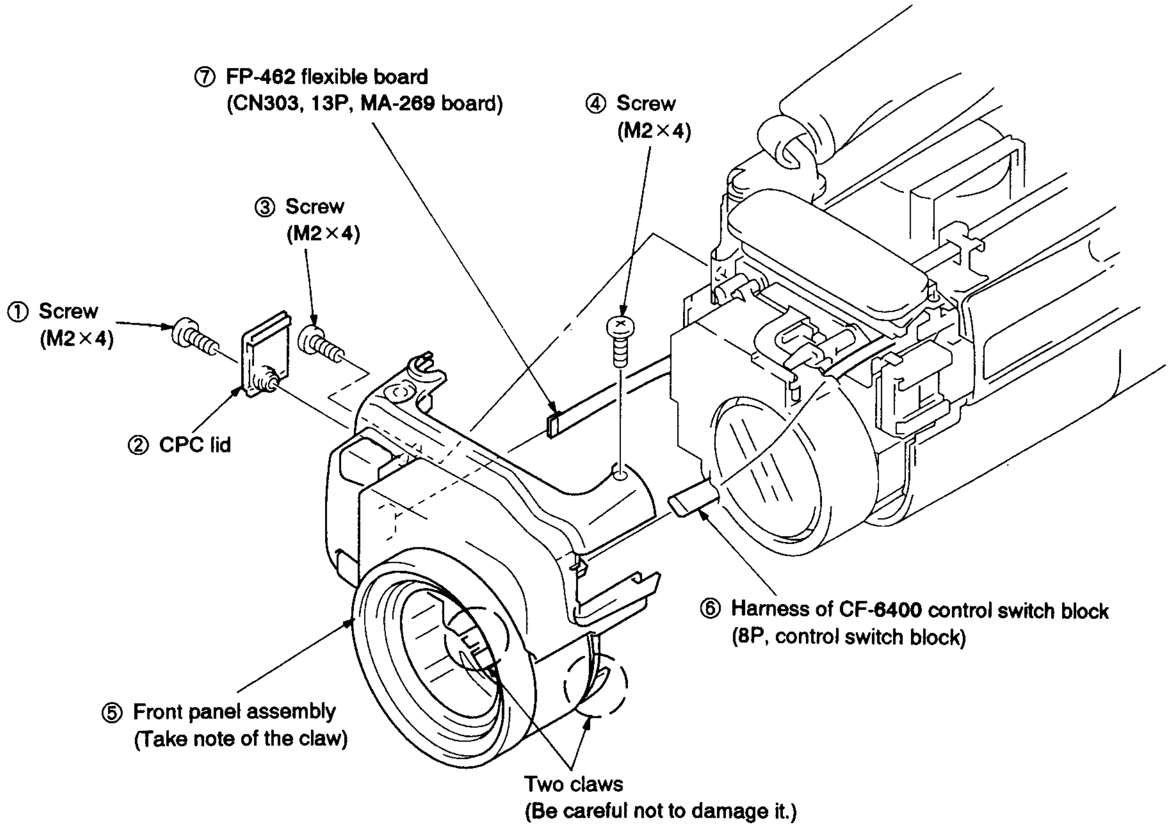
9 **La pila de litio está casi agotada o no está instalada.** (pág.90)

SECTION 2
DISASSEMBLY

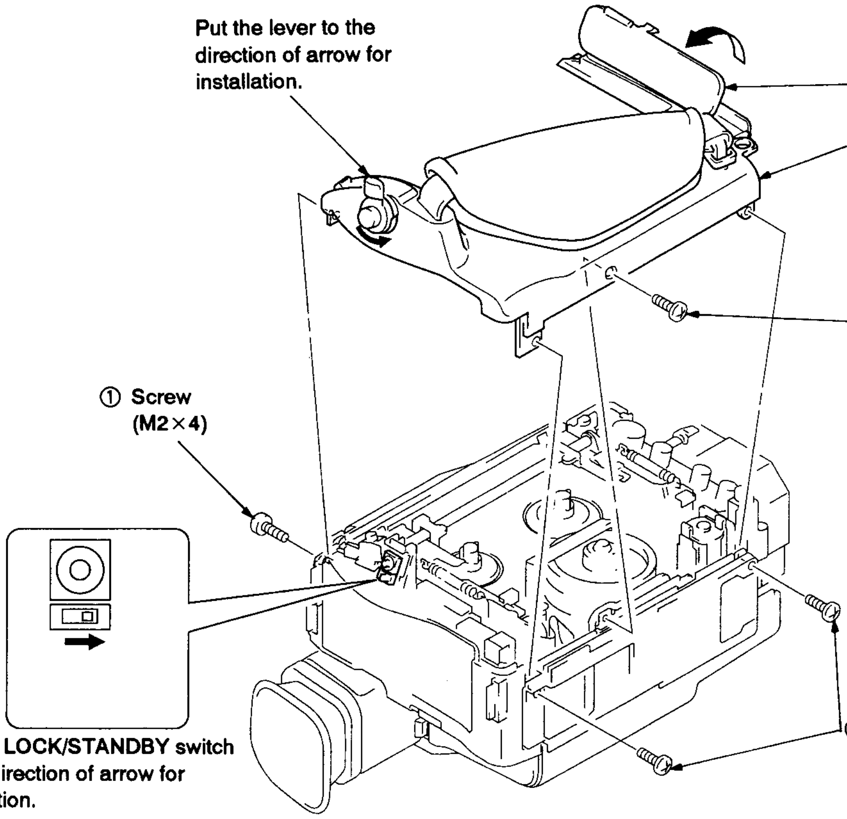
2-1. REMOVAL OF CASSETTE LID ASSEMBLY


① Two screws
(M2×4)
② Cassette lid assembly

2-2. REMOVAL OF FRONT PANEL ASSEMBLY


⑦ FP-462 flexible board
(CN303, 13P, MA-269 board)
④ Screw
(M2×4)
③ Screw
(M2×4)
① Screw
(M2×4)
② CPC lid
⑥ Harness of CF-6400 control switch block
(8P, control switch block)
⑤ Front panel assembly
(Take note of the claw)
Two claws
(Be careful not to damage it.)

2-3. REMOVAL OF CABINET (L) ASSEMBLY



Put the lever to the direction of arrow for installation.

④ Open the jack lid.

⑤ Cabinet (L) assembly

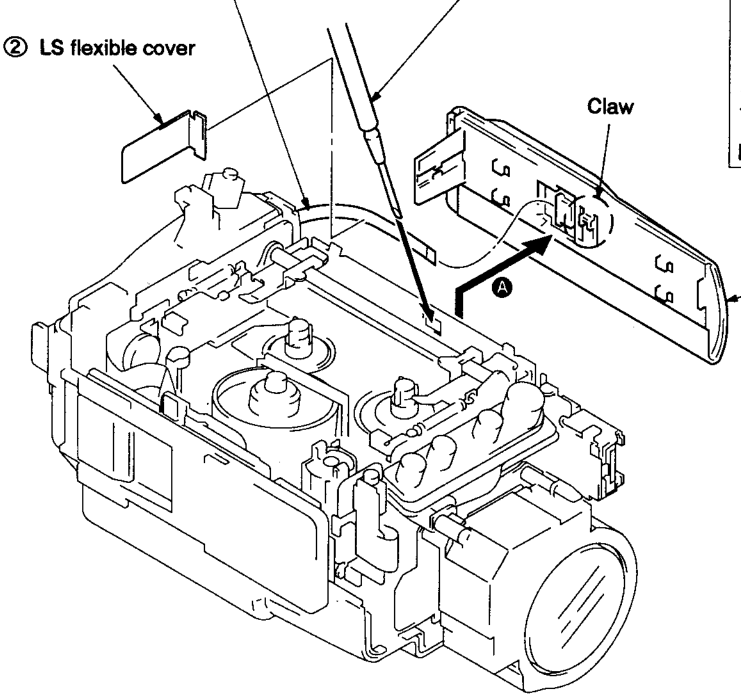
③ Screw (M2×4)

① Screw (M2×4)

② Two screws (M2×4)

Put the LOCK/STANDBY switch to the direction of arrow for installation.

2-4. REMOVAL OF LS LID BLOCK ASSEMBLY



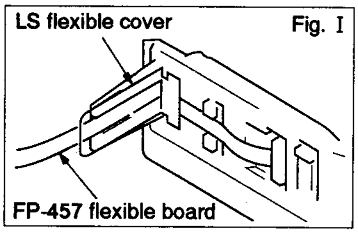
③ FP-457 flexible board (CN151, 8P, FK-67 board) Note for installation (Refer to Fig. I)

② LS flexible cover

Minus screwdriver
Claw
A

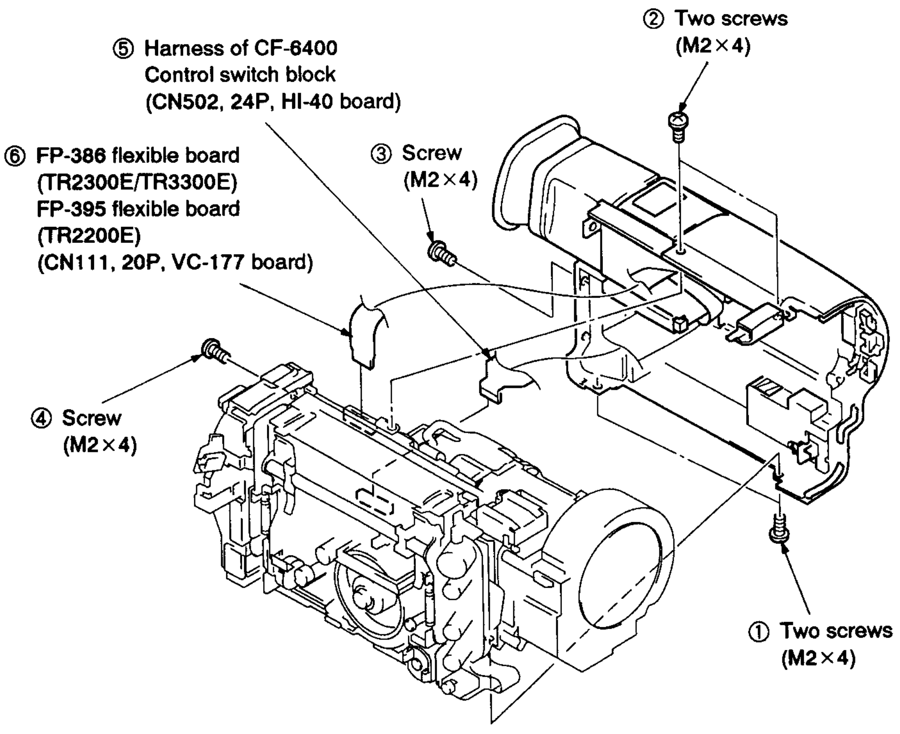
① Remove the LS lid block assembly in the direction of arrow A with pushing the claw.

Note: Treat the FP-457 flexible board as in the figure.

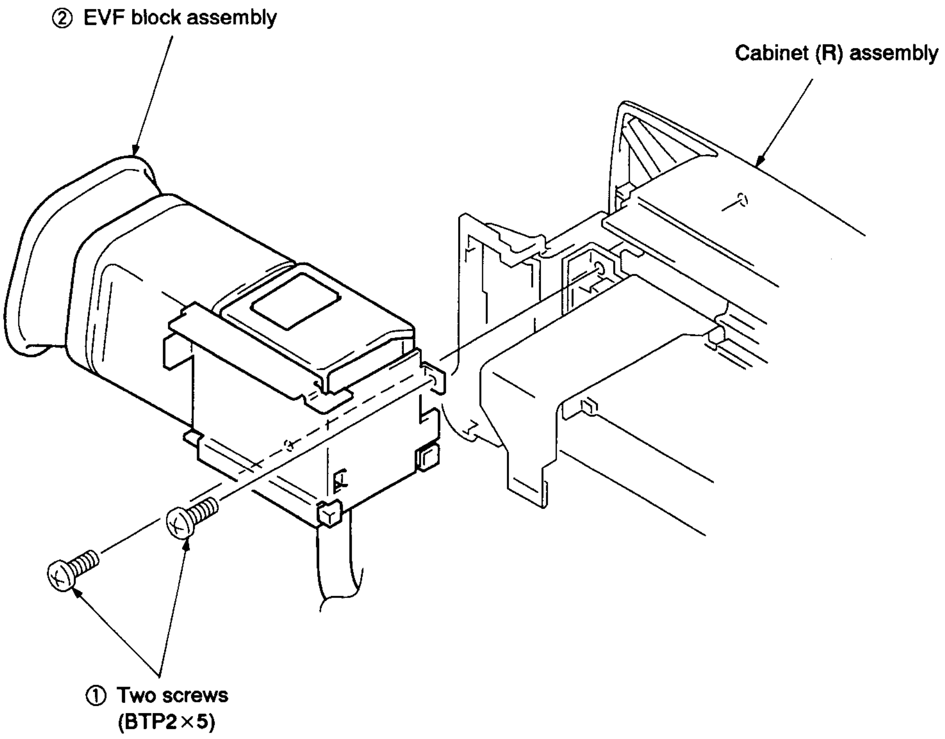


LS flexible cover
Fig. I
FP-457 flexible board

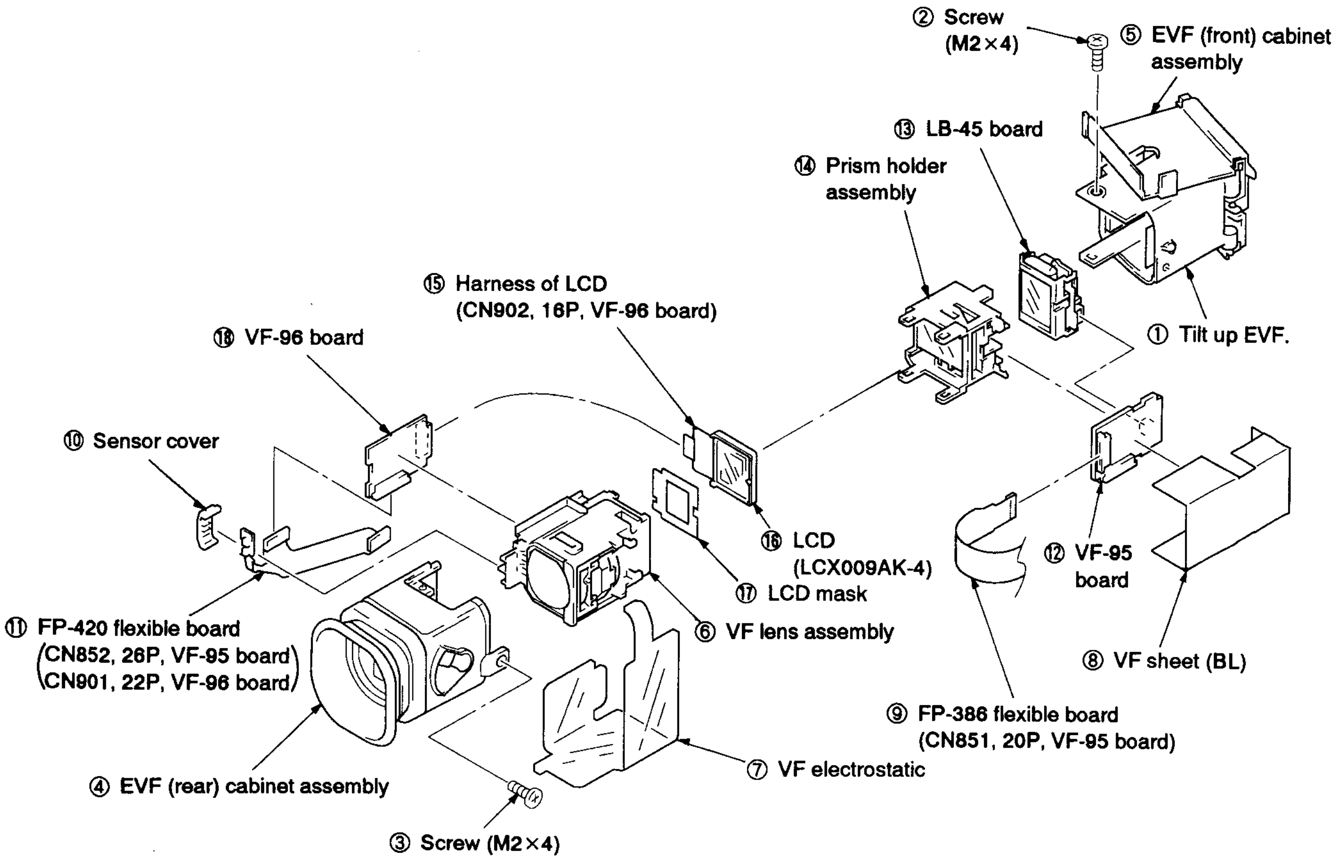
2-5. REMOVAL OF CABINET (R) ASSEMBLY


② Two screws
(M2×4)
⑤ Harness of CF-6400
Control switch block
(CN502, 24P, HI-40 board)
⑥ FP-386 flexible board
(TR2300E/TR3300E)
FP-395 flexible board
(TR2200E)
(CN111, 20P, VC-177 board)
③ Screw
(M2×4)
④ Screw
(M2×4)
① Two screws
(M2×4)

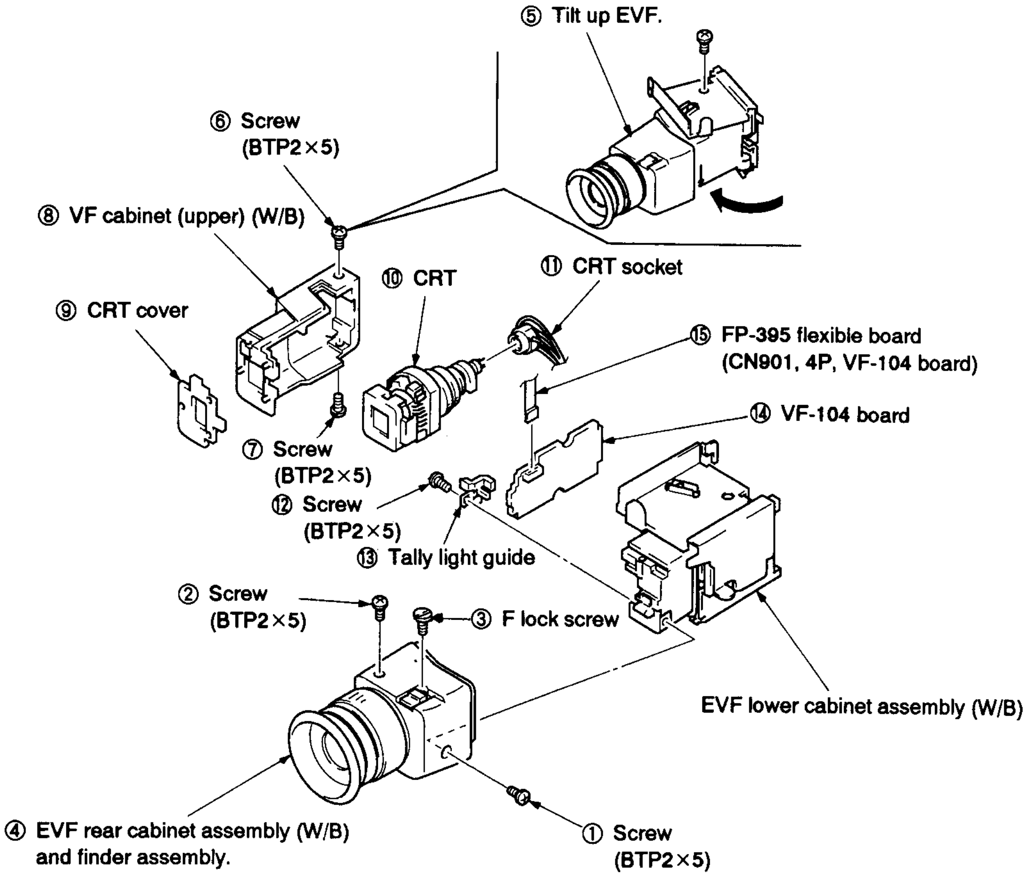
2-6. REMOVAL OF EVF BLOCK ASSEMBLY


② EVF block assembly
Cabinet (R) assembly
① Two screws
(BTP2×5)

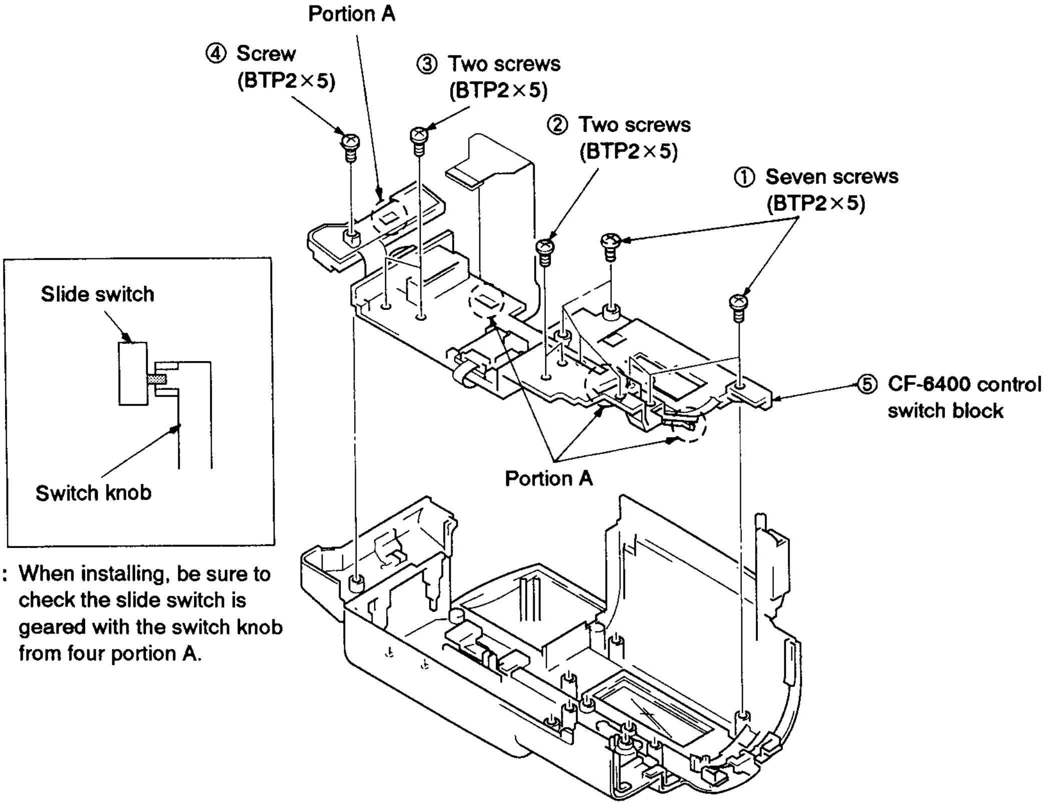
2-7. REMOVAL OF EVF ASSEMBLY (COLOR EVF) (TR2300E/TR3300E)


② Screw
(M2×4)
⑤ EVF (front) cabinet
assembly
⑬ LB-45 board
⑭ Prism holder
assembly
⑮ Harness of LCD
(CN902, 16P, VF-96 board)
⑱ VF-96 board
① Tilt up EVF.
⑩ Sensor cover
⑯ LCD
(LCX009AK-4)
⑰ LCD mask
⑫ VF-95
board
⑪ FP-420 flexible board
(CN852, 26P, VF-95 board)
(CN901, 22P, VF-96 board)
⑥ VF lens assembly
⑧ VF sheet (BL)
⑨ FP-386 flexible board
(CN851, 20P, VF-95 board)
⑦ VF electrostatic
④ EVF (rear) cabinet assembly
③ Screw (M2×4)

2-8. REMOVAL OF EVF ASSEMBLY (W/B EVF) (TR2200E)

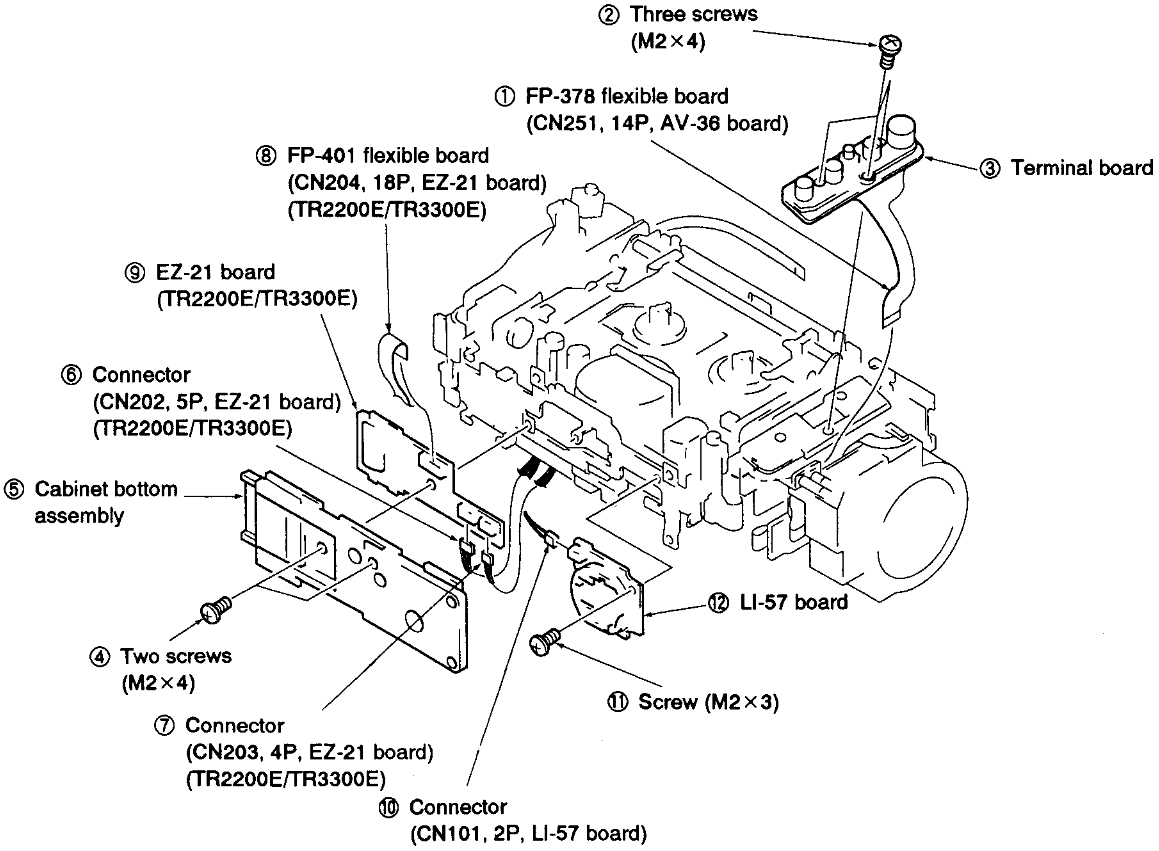

⑤ Tilt up EVF.
⑥ Screw
(BTP2×5)
⑧ VF cabinet (upper) (W/B)
⑩ CRT
⑪ CRT socket
⑨ CRT cover
⑮ FP-395 flexible board
(CN901, 4P, VF-104 board)
⑭ VF-104 board
⑦ Screw
(BTP2×5)
⑫ Screw
(BTP2×5)
⑬ Tally light guide
② Screw
(BTP2×5)
③ F lock screw
EVF lower cabinet assembly (W/B)
④ EVF rear cabinet assembly (W/B)
and finder assembly.
① Screw
(BTP2×5)

2-9. REMOVAL OF CF-6400 CONTROL SWITCH BLOCK

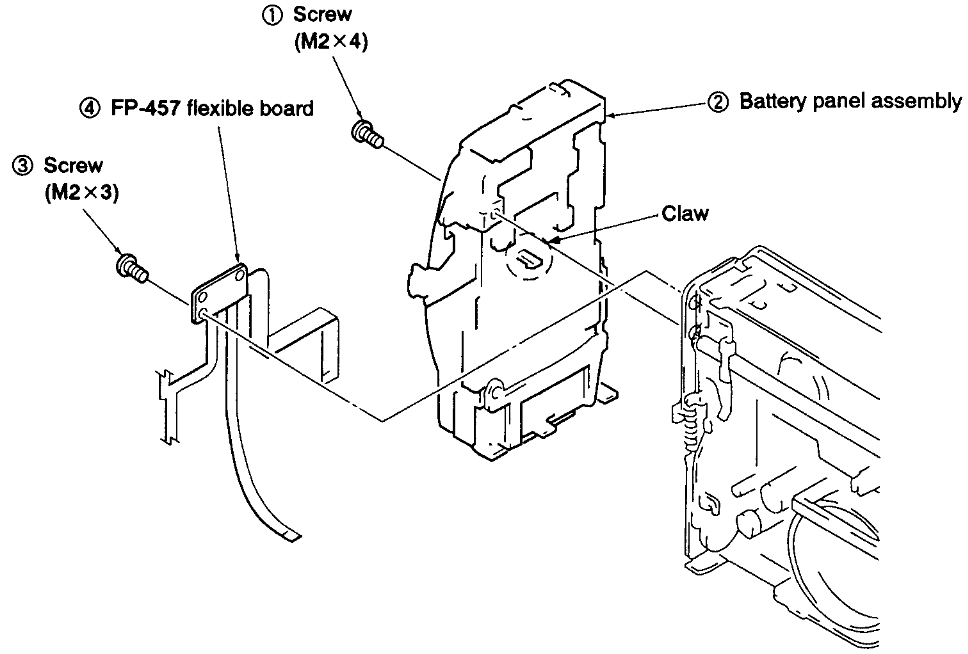

Portion A
④ Screw (BTP2×5)
③ Two screws (BTP2×5)
② Two screws (BTP2×5)
① Seven screws (BTP2×5)
⑤ CF-6400 control switch block
Portion A
Slide switch
Switch knob

Note: When installing, be sure to check the slide switch is geared with the switch knob from four portion A.

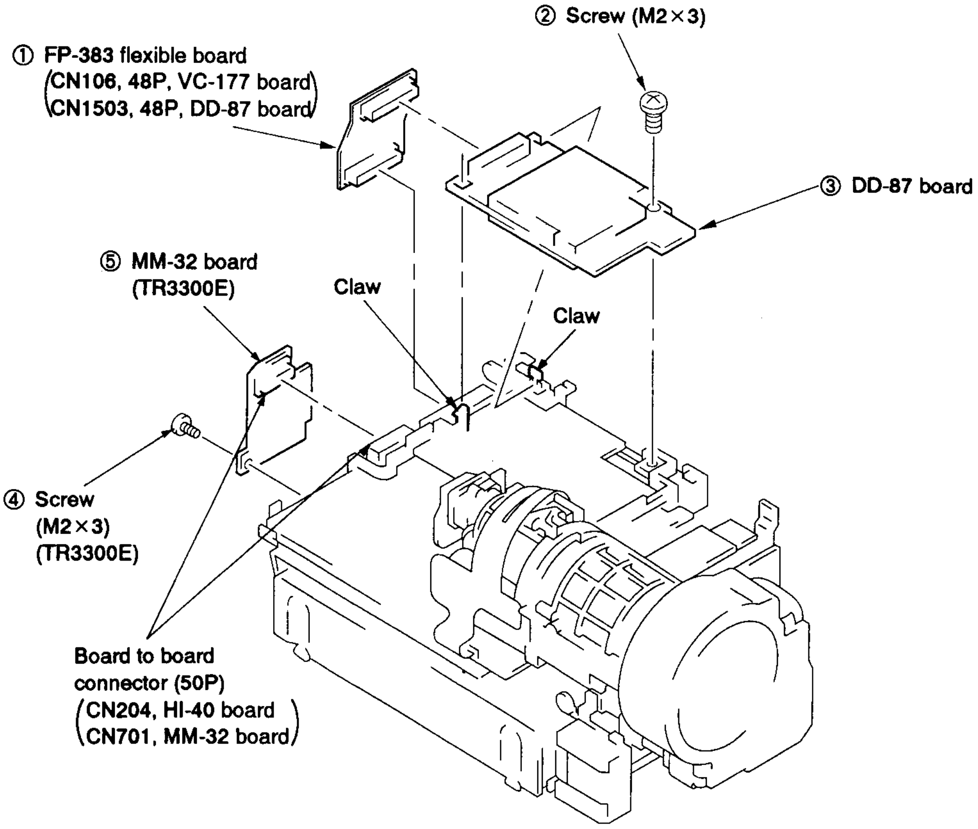
2-10. REMOVAL OF CABINET BOTTOM ASSEMBLY, EZ-21 BOARD AND LI-57 BOARD


② Three screws (M2×4)
① FP-378 flexible board (CN251, 14P, AV-36 board)
③ Terminal board
⑧ FP-401 flexible board (CN204, 18P, EZ-21 board) (TR2200E/TR3300E)
⑨ EZ-21 board (TR2200E/TR3300E)
⑥ Connector (CN202, 5P, EZ-21 board) (TR2200E/TR3300E)
⑤ Cabinet bottom assembly
⑫ LI-57 board
④ Two screws (M2×4)
⑪ Screw (M2×3)
⑦ Connector (CN203, 4P, EZ-21 board) (TR2200E/TR3300E)
⑩ Connector (CN101, 2P, LI-57 board)

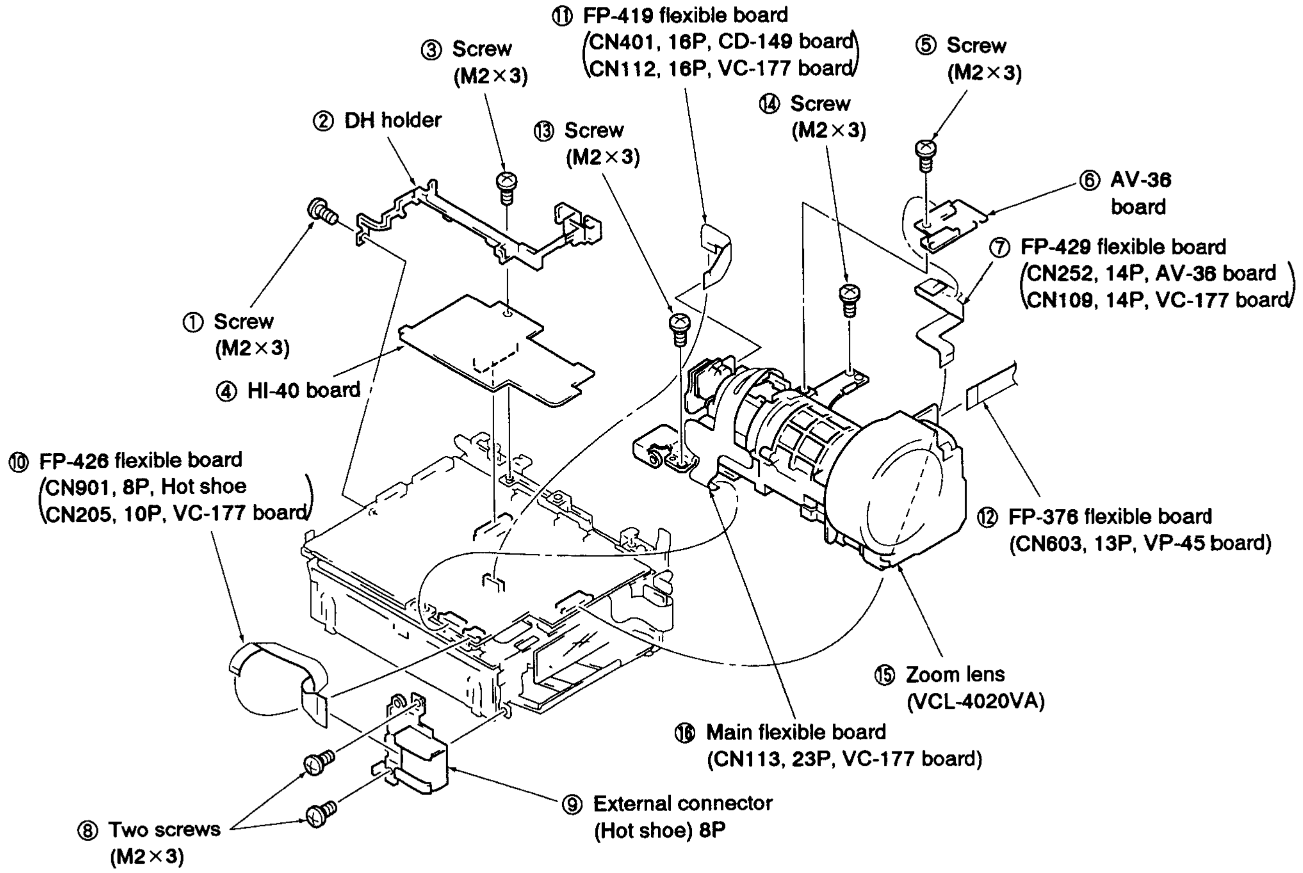
2-11. REMOVAL OF BATTERY PANEL ASSEMBLY


① Screw
(M2×4)
④ FP-457 flexible board
③ Screw
(M2×3)
② Battery panel assembly
Claw

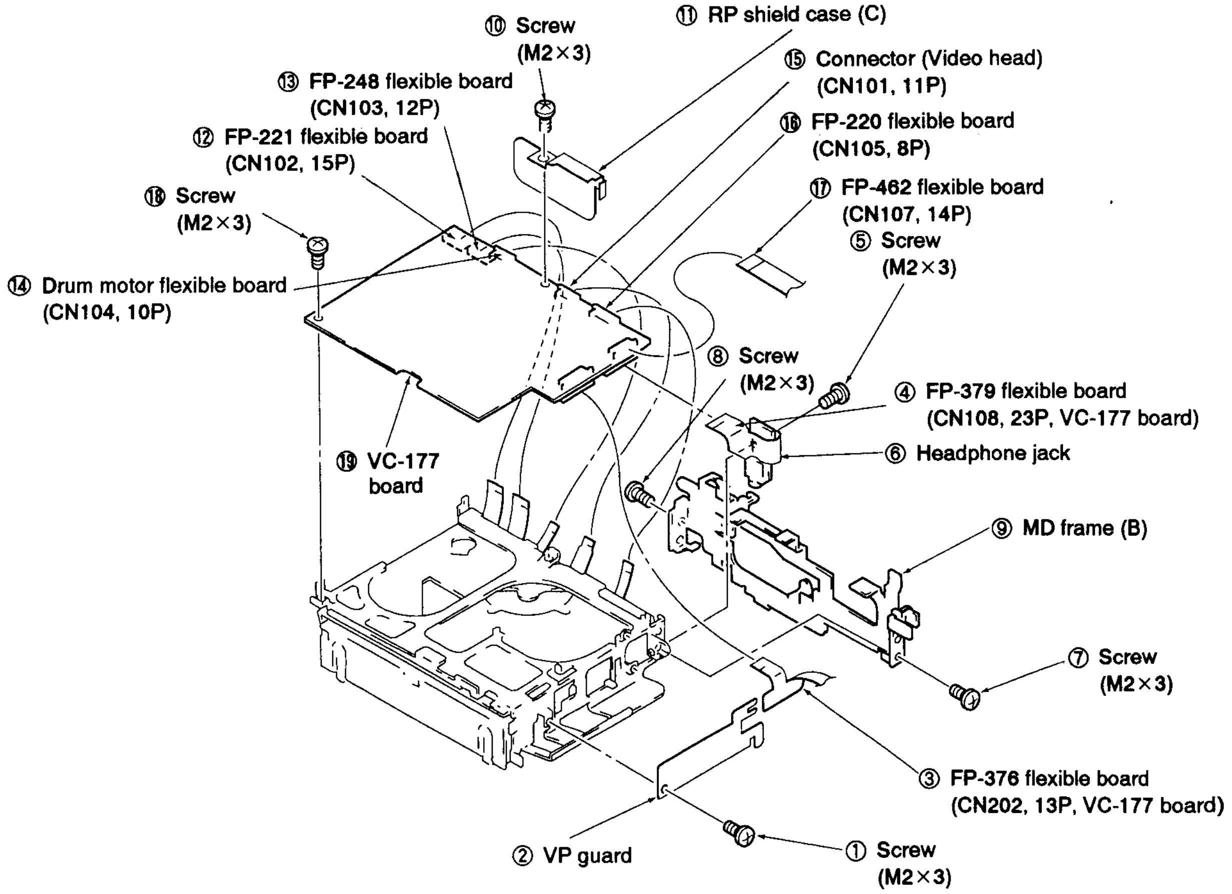
2-12. REMOVAL OF DD-87 BOARD AND MM-32 BOARD


② Screw (M2×3)
① FP-383 flexible board
(CN106, 48P, VC-177 board)
(CN1503, 48P, DD-87 board)
③ DD-87 board
⑤ MM-32 board
(TR3300E)
Claw
Claw
④ Screw
(M2×3)
(TR3300E)
Board to board
connector (50P)
(CN204, HI-40 board)
(CN701, MM-32 board)

2-13. REMOVAL OF ZOOM LENS (VCL-4020VA), HI-40 BOARD AND AV-36 BOARD


⑪ FP-419 flexible board
(CN401, 16P, CD-149 board)
(CN112, 16P, VC-177 board)
③ Screw
(M2×3)
⑤ Screw
(M2×3)
⑭ Screw
(M2×3)
② DH holder
⑬ Screw
(M2×3)
⑥ AV-36
board
⑦ FP-429 flexible board
(CN252, 14P, AV-36 board)
(CN109, 14P, VC-177 board)
① Screw
(M2×3)
④ HI-40 board
⑩ FP-426 flexible board
(CN901, 8P, Hot shoe)
(CN205, 10P, VC-177 board)
⑫ FP-376 flexible board
(CN603, 13P, VP-45 board)
⑮ Zoom lens
(VCL-4020VA)
⑯ Main flexible board
(CN113, 23P, VC-177 board)
⑨ External connector
(Hot shoe) 8P
⑧ Two screws
(M2×3)

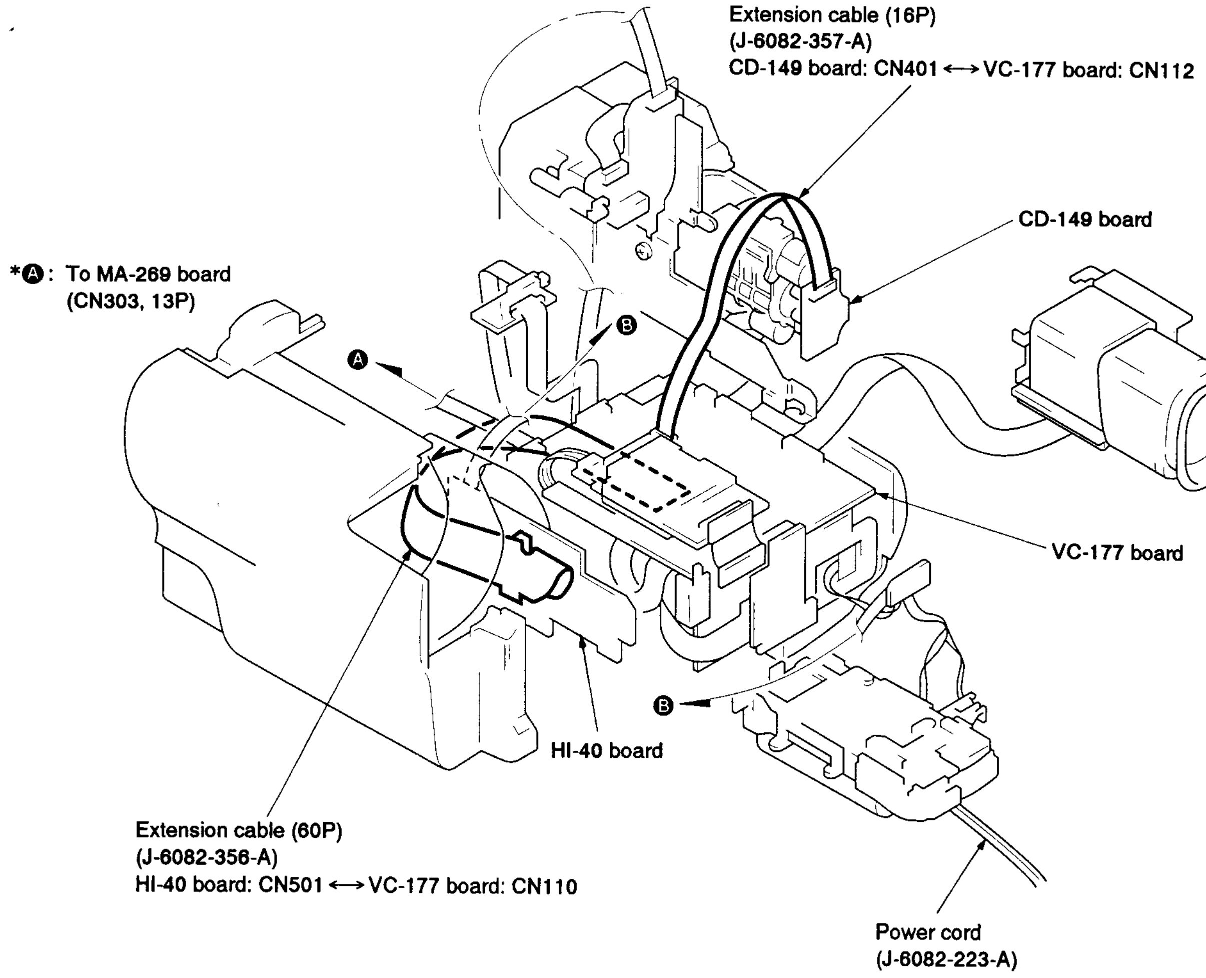
2-14. REMOVAL OF VC-177 BOARD


⑩ Screw
(M2×3)
⑪ RP shield case (C)
⑬ FP-248 flexible board
(CN103, 12P)
⑮ Connector (Video head)
(CN101, 11P)
⑫ FP-221 flexible board
(CN102, 15P)
⑯ FP-220 flexible board
(CN105, 8P)
⑱ Screw
(M2×3)
⑰ FP-462 flexible board
(CN107, 14P)
⑤ Screw
(M2×3)
⑭ Drum motor flexible board
(CN104, 10P)
⑧ Screw
(M2×3)
④ FP-379 flexible board
(CN108, 23P, VC-177 board)
⑲ VC-177
board
⑥ Headphone jack
⑨ MD frame (B)
⑦ Screw
(M2×3)
③ FP-376 flexible board
(CN202, 13P, VC-177 board)
② VP guard
① Screw
(M2×3)

2-15. SERVICE POSITION

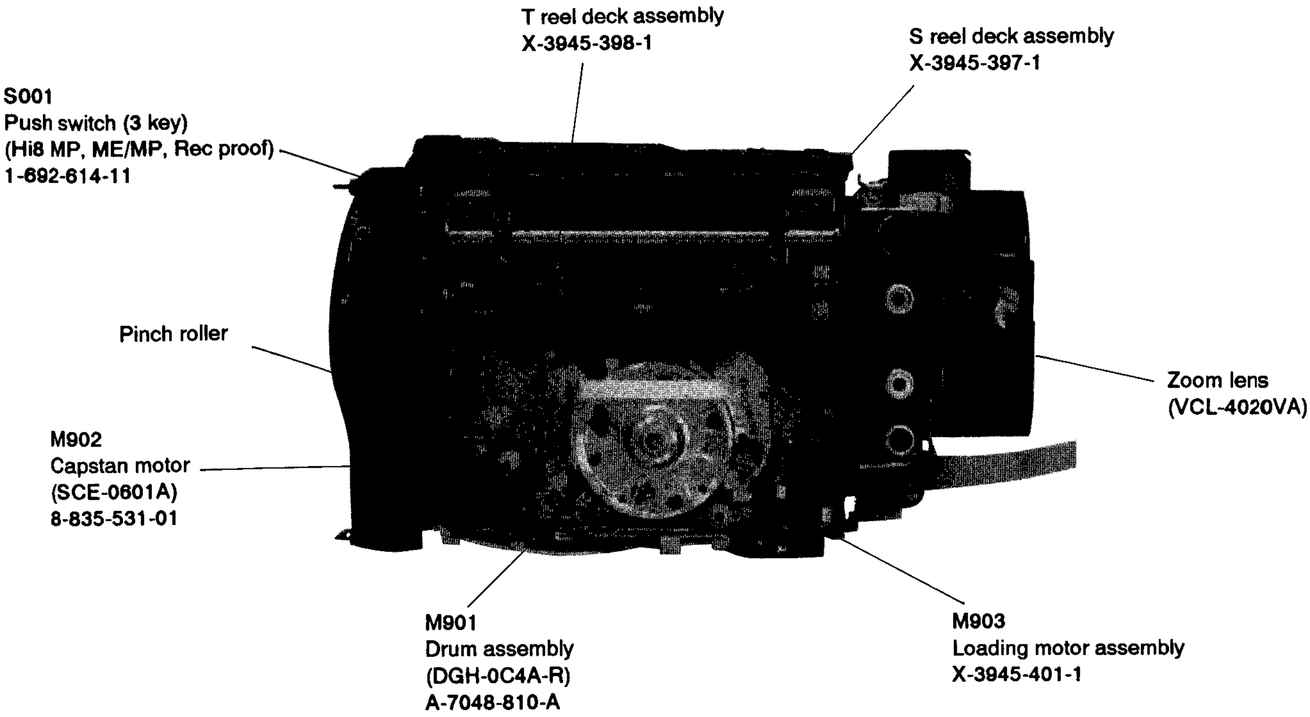
Note: When the following parts are removed, be sure to remember the connection parts becuase those connectors and etc. are needed to connect later on.

① Refer to 2-2. to remove the front panel assembly.
② Refer to 2-3. to remove the cabinet (L) assembly.
③ Refer to 2-5. to remove the cabinet (R) assembly.
④ Refer to 2-6. to remove the EVF block assembly.
⑤ Refer to 2-10. to remove the bottom cabinet assembly.
⑥ Refer to 2-11. to remove the battery panel assembly and FP-457 flexible board.
⑦ Refer to 2-12. to remove the DD-87 board.
⑧ Refer to 2-13. to remove the zoom lens, HI-40 board and AV-36 board.

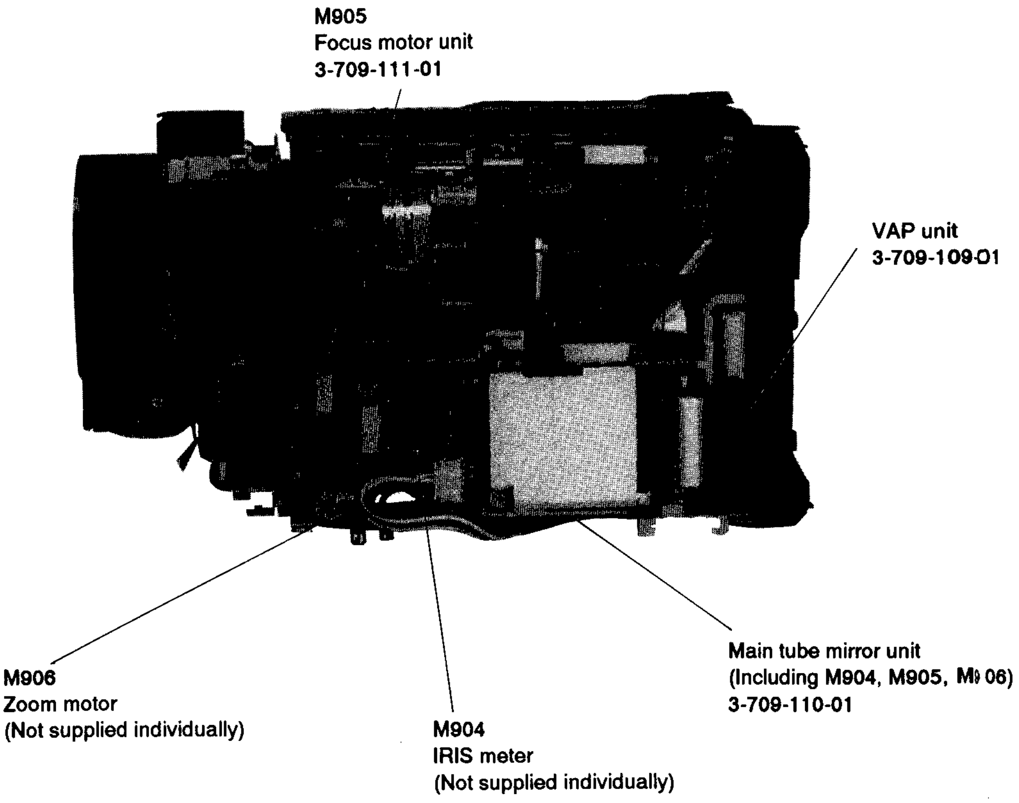

Extension cable (16P)
(J-6082-357-A)
CD-149 board: CN401 ←→ VC-177 board: CN112
CD-149 board
*Ⓐ : To MA-269 board
(CN303, 13P)
Ⓐ
Ⓑ
VC-177 board
Ⓑ
HI-40 board
Extension cable (60P)
(J-6082-356-A)
HI-40 board: CN501 ←→ VC-177 board: CN110
Power cord
(J-6082-223-A)

2-16. INTERNAL VIEWS

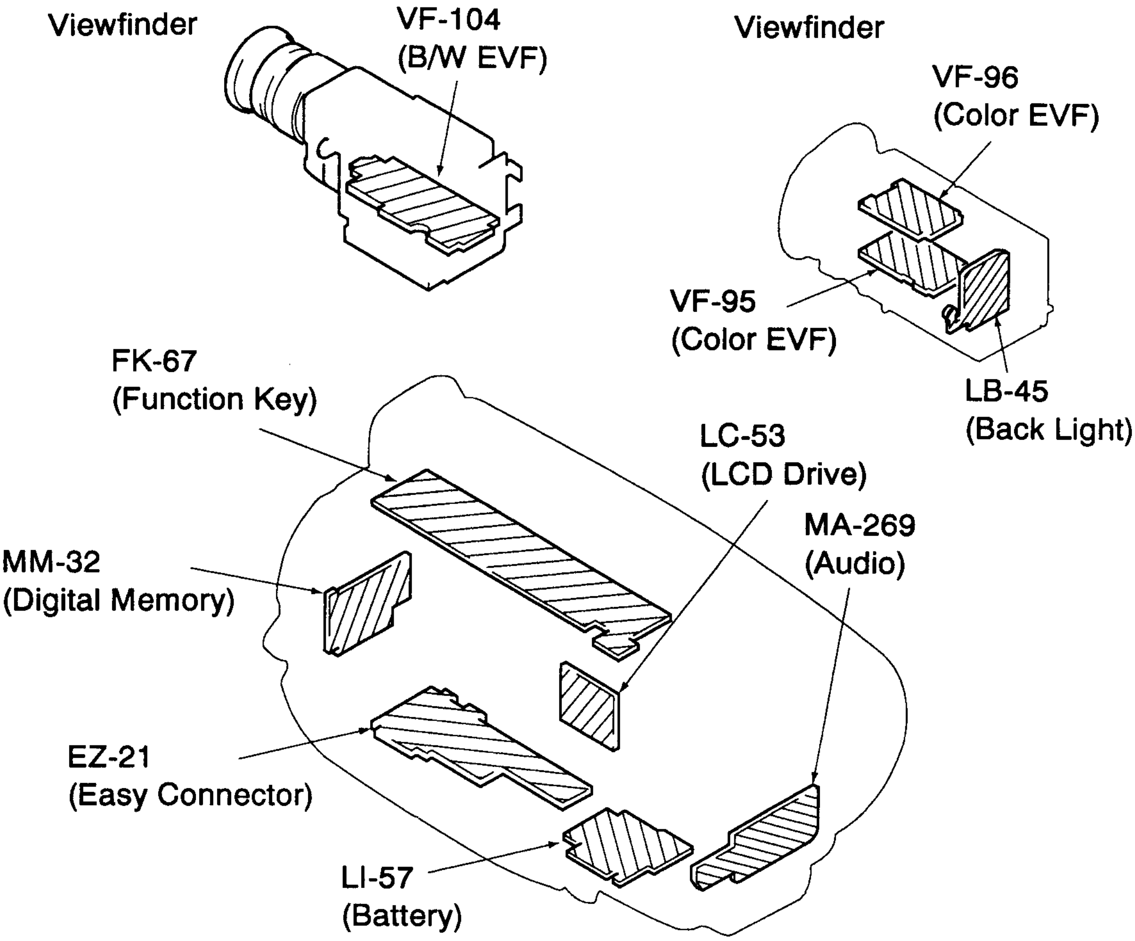
— Left side —

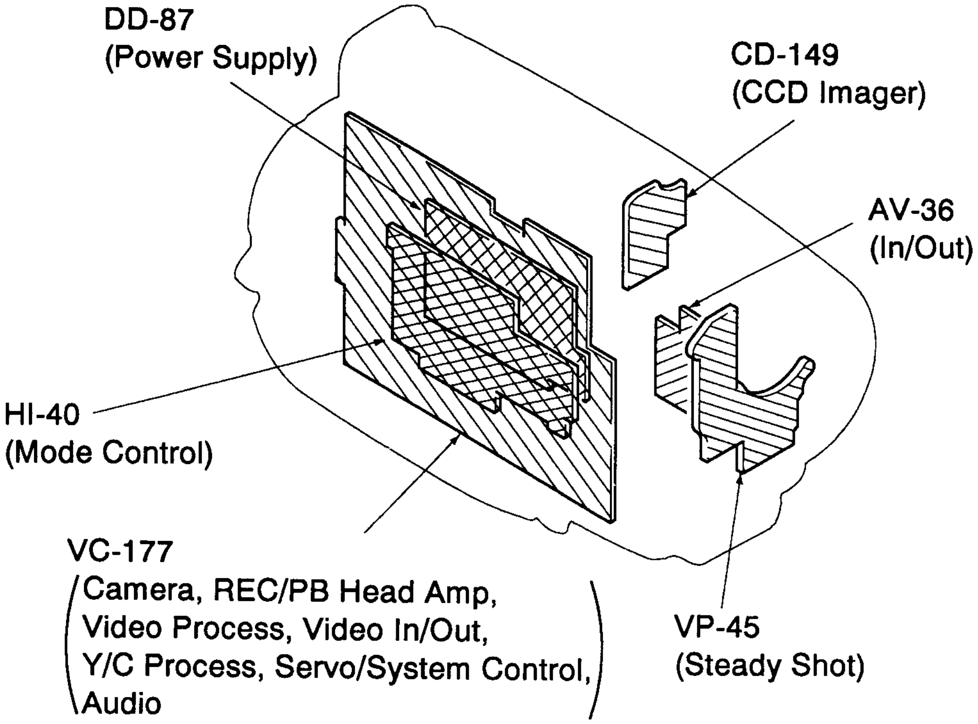

T reel deck assembly
X-3945-398-1
S reel deck assembly
X-3945-397-1
S001
Push switch (3 key)
(Hi8 MP, ME/MP, Rec proof)
1-692-614-11
Pinch roller
Zoom lens
(VCL-4020VA)
M902
Capstan motor
(SCE-0601A)
8-835-531-01
M901
Drum assembly
(DGH-0C4A-R)
A-7048-810-A
M903
Loading motor assembly
X-3945-401-1

— Right side —


M905
Focus motor unit
3-709-111-01
VAP unit
3-709-109-01
Main tube mirror unit
(Including M904, M905, M906)
3-709-110-01
M906
Zoom motor
(Not supplied individually)
M904
IRIS meter
(Not supplied individually)

2-17. CIRCUIT BOARDS LOCATION

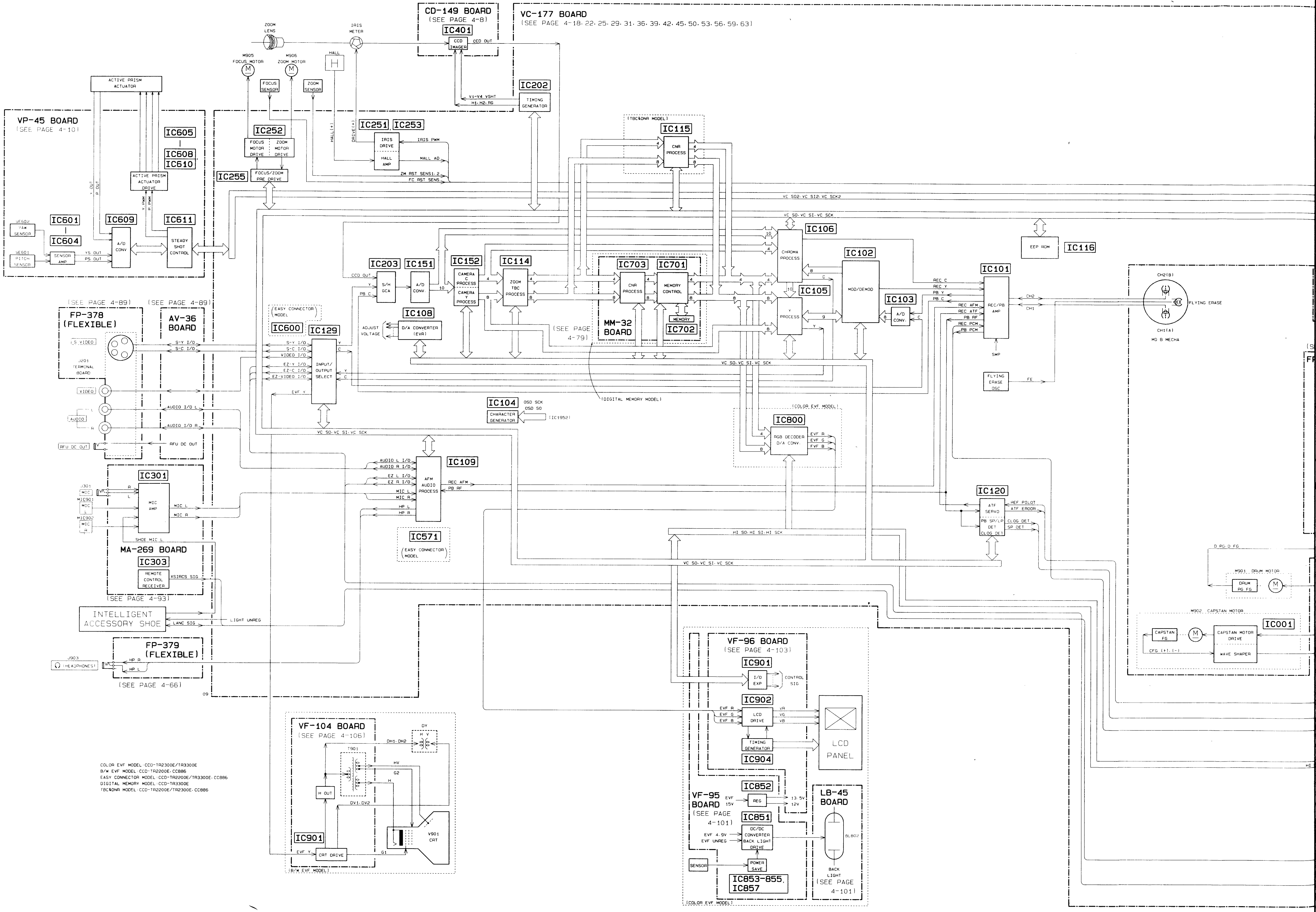

Viewfinder
VF-104
(B/W EVF)
Viewfinder
VF-96
(Color EVF)
VF-95
(Color EVF)
LB-45
(Back Light)
FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
MM-32
(Digital Memory)
EZ-21
(Easy Connector)
LI-57
(Battery)


DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
(Camera, REC/PB Head Amp, Video Process, Video In/Out, Y/C Process, Servo/System Control, Audio)
VP-45
(Steady Shot)

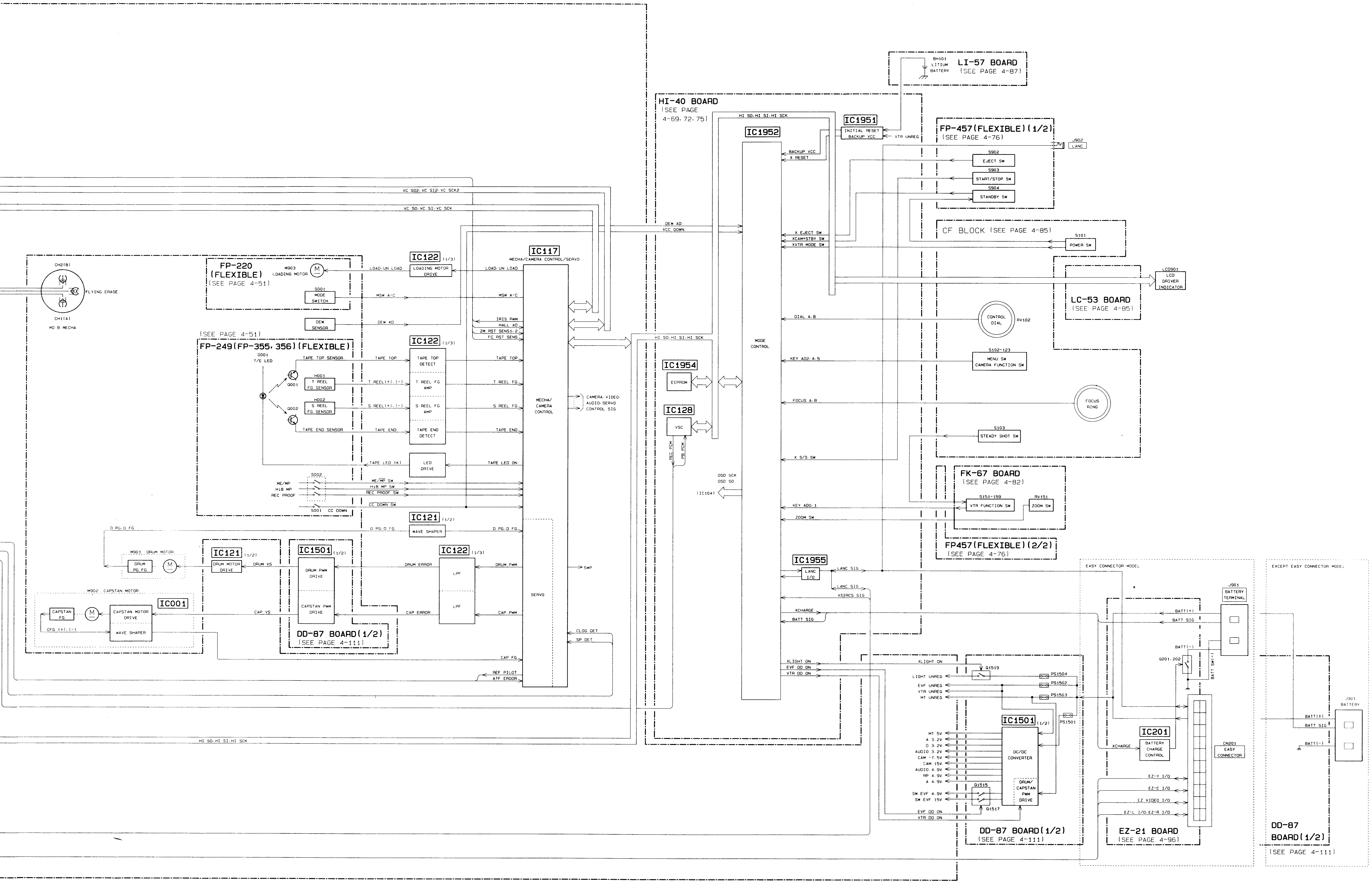
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

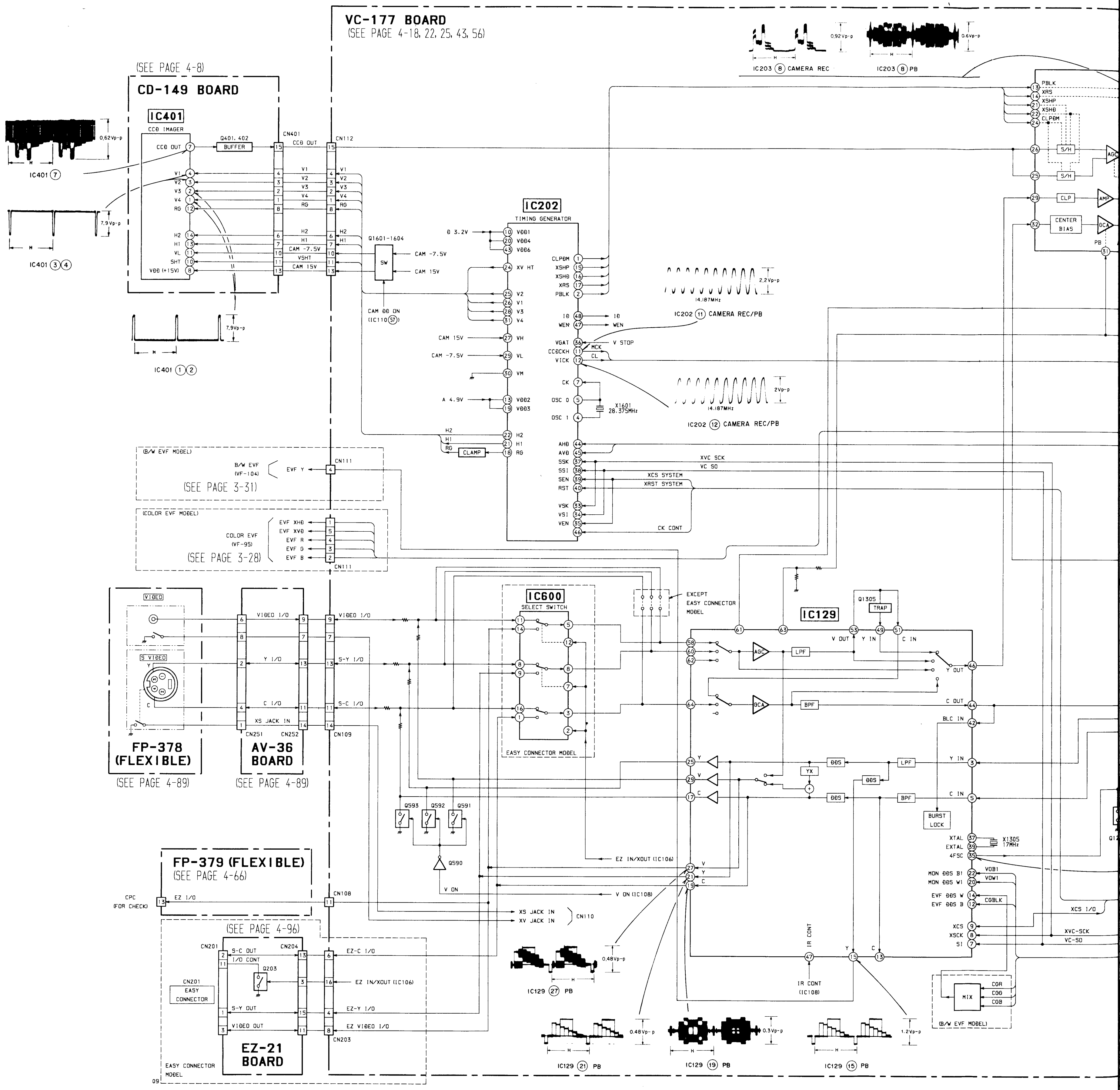
Refer to page 2 as Table for distinction functions of models and classification.


CD-149 BOARD
(SEE PAGE 4-8)
IC401
CCD IMAGER
CCD OUT
VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 29, 31, 36, 39, 42, 45, 50, 53, 56, 59, 63)
ZOOM LENS
IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
HALL
FOCUS SENSOR
ZOOM SENSOR
IC202
TIMING GENERATOR
V1-V4 VSHT
H1, H2, RG
ACTIVE PRISM ACTUATOR
VP-45 BOARD
(SEE PAGE 4-10)
IC605
IC608
IC610
ACTIVE PRISM ACTUATOR DRIVE
Y OUT
P OUT
Y, PWM
P, PWM
IC601
IC604
IC609
IC611
SE602 YAW SENSOR
SE601 PITCH SENSOR
SENSOR AMP
YS OUT
PS OUT
A/D CONV
STEADY SHOT CONTROL
IC252
FOCUS MOTOR DRIVE
ZOOM MOTOR DRIVE
IC255
FOCUS/ZOOM PRE DRIVE
HALL(+)
DRIVE(+)
IC251
IC253
IRIS DRIVE
HALL AMP
IRIS PWM
HALL AD
ZM RST SENS1, 2
FC RST SENS
(TBC&DNR MODEL)
IC115
CNR PROCESS
VC SO2, VC SI2, VC SCK2
VC SO, VC SI, VC SCK
IC106
CHROMA PROCESS
IC105
Y PROCESS
IC102
MOD/DEMOD
IC103
A/D CONV.
EEP ROM
IC116
IC101
REC/PB AMP
REC C
REC Y
PB Y
PB C
REC AFM
REC ATF
PB RF
REC PCM
PB PCM
SWP
CH2
CH1
FLYING ERASE OSC
FE
CH2(B)
CH1(A)
FLYING ERASE
MD B MECHA
IC203
S/H GCA
CCD OUT
Y
PB C
IC151
A/D CONV.
IC152
CAMERA C PROCESS
CAMERA Y PROCESS
IC114
ZOOM TBC PROCESS
IC703
CNR PROCESS
IC701
MEMORY CONTROL
MEMORY
IC702
MM-32 BOARD
(SEE PAGE 4-79)
(DIGITAL MEMORY MODEL)
IC108
D/A CONVERTER (EVR)
ADJUST VOLTAGE
(EASY CONNECTOR MODEL)
IC600
IC129
INPUT/OUTPUT SELECT
S-Y I/O
S-C I/O
VIDEO I/O
EZ-Y I/O
EZ-C I/O
EZ-VIDEO I/O
EVF Y
IC104
CHARACTER GENERATOR
OSD SCK
OSD SO
(IC1952)
(COLOR EVF MODEL)
IC800
RGB DECODER D/A CONV.
EVF R
EVF G
EVF B
(SEE PAGE 4-89)
FP-378 (FLEXIBLE)
S VIDEO
J201 TERMINAL BOARD
VIDEO
AUDIO
L
R
RFU DC OUT
(SEE PAGE 4-89)
AV-36 BOARD
AUDIO I/O L
AUDIO I/O R
IC109
AFM AUDIO PROCESS
AUDIO L I/O
AUDIO R I/O
EZ L I/O
EZ R I/O
MIC L
MIC R
HP L
HP R
REC AFM
PB RF
IC571
(EASY CONNECTOR MODEL)
IC301
J301 MIC
MIC901 MIC L
MIC902 MIC R
MIC AMP
SHOE MIC L
MA-269 BOARD
IC303
REMOTE CONTROL RECEIVER
XSIRCS SIG
(SEE PAGE 4-93)
INTELLIGENT ACCESSORY SHOE
LIGHT UNREG
LANC SIG
FP-379 (FLEXIBLE)
J903 HEADPHONES
(SEE PAGE 4-66)
09
IC120
ATF SERVO
PB SP/LP DET
CLOG DET
REF PILOT
ATF ERROR
CLOG DET
SP DET
HI SO, HI SI, HI SCK
D PG, D FG
M901 DRUM MOTOR
DRUM PG FG
M902 CAPSTAN MOTOR
CAPSTAN FG
IC001
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CFG (+), (-)
VF-96 BOARD
(SEE PAGE 4-103)
IC901
I/O EXP
CONTROL SIG
IC902
LCD DRIVE
VR
VG
VB
TIMING GENERATOR
IC904
LCD PANEL
VF-95 BOARD
(SEE PAGE 4-101)
IC852
EVF 15V
REG
13.5V
12V
IC851
EVF 4.9V
EVF UNREG
DC/DC CONVERTER BACK LIGHT DRIVE
SENSOR
POWER SAVE
IC853-855, IC857
LB-45 BOARD
BL802
BACK LIGHT
(SEE PAGE 4-101)
(COLOR EVF MODEL)
VF-104 BOARD
(SEE PAGE 4-106)
T901
DY
H V
DH1, DH2
HV
G2
H
H OUT
DV1, DV2
IC901
EVF Y
CRT DRIVE
G1
V901 CRT
(B/W EVF MODEL)

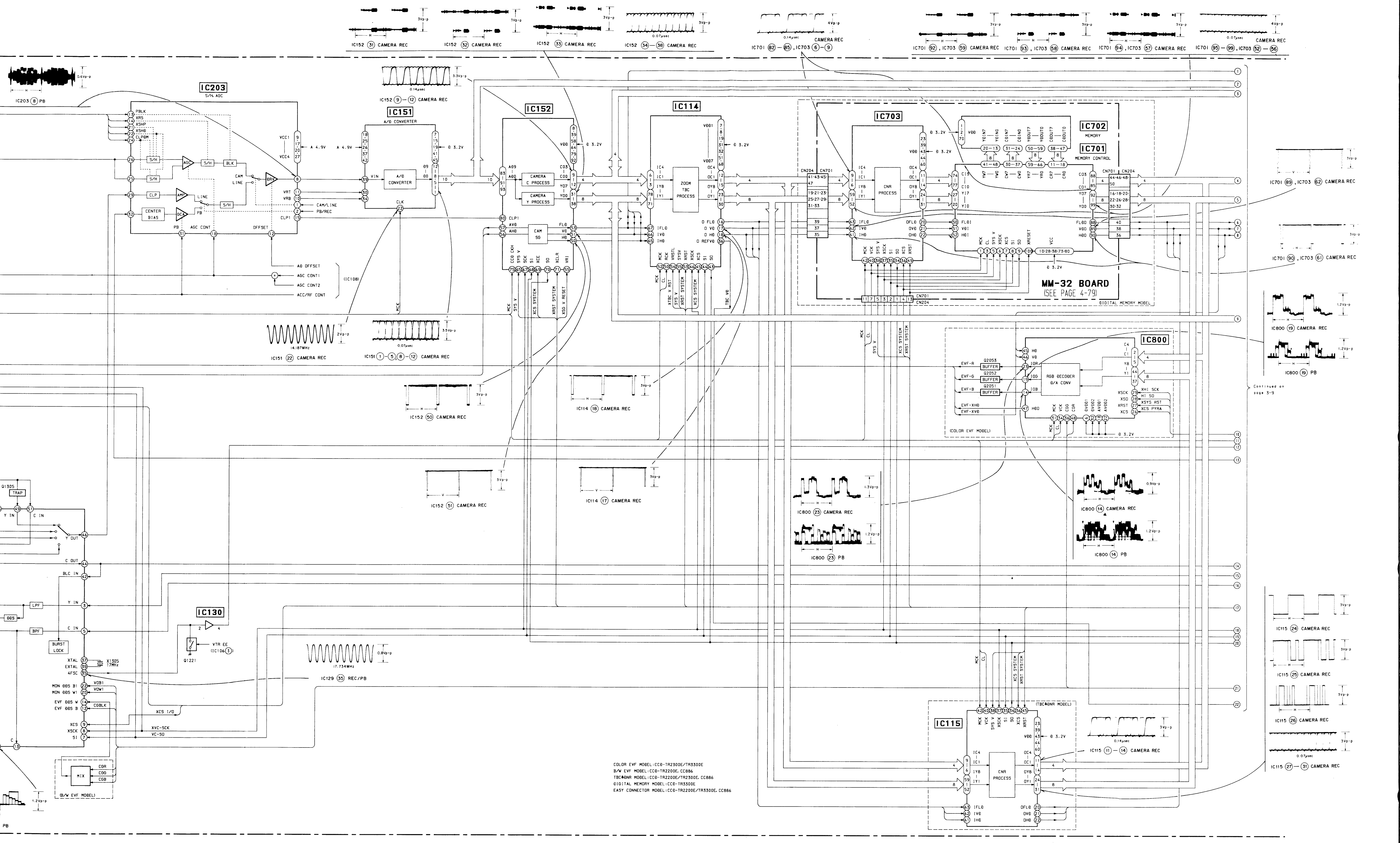
COLOR EVF MODEL:CCD-TR2300E/TR3300E
B/W EVF MODEL:CCD-TR2200E, CC886
EASY CONNECTOR MODEL:CCD-TR2200E/TR3300E, CC886
DIGITAL MEMORY MODEL:CCD-TR3300E
TBC&DNR MODEL:CCD-TR2200E/TR2300E, CC886


LI-57 BOARD
(SEE PAGE 4-87)
BH101 LITIUM BATTERY
HI-40 BOARD
(SEE PAGE 4-69, 72, 75)
IC1951
INITIAL RESET
BACKUP VCC
VTR UNREG
IC1952
MODE CONTROL
BACKUP VCC
X RESET
X EJECT SW
XCAM•STBY SW
XVTR MODE SW
DIAL A.B
KEY AD2.4.5
FOCUS A.B
X S/S SW
KEY AD0.1
ZOOM SW
OSD SCK
OSD SO
(IC104)
IC1954
EEPROM
IC128
VSC
REC PCM
PB PCM
IC1955
LANC I/O
LANC SIG
XSIRCS SIG
XCHARGE
BATT SIG
XLIGHT ON
EVF DD ON
VTR DD ON
HI SO, HI SI, HI SCK
DEW AD
XCC DOWN
VC SO2, VC SI2, VC SCK2
VC SO, VC SI, VC SCK
FP-457 (FLEXIBLE) (1/2)
(SEE PAGE 4-76)
J902 LANC
S902 EJECT SW
S903 START/STOP SW
S904 STANDBY SW
CF BLOCK (SEE PAGE 4-85)
S101 POWER SW
LC-53 BOARD
(SEE PAGE 4-85)
LCD901 LCD DRIVER INDICATOR
CONTROL DIAL
RV102
S102-123 MENU SW CAMERA FUNCTION SW
FOCUS RING
S103 STEADY SHOT SW
FK-67 BOARD
(SEE PAGE 4-82)
S151-159 VTR FUNCTION SW
RV151 ZOOM SW
FP457 (FLEXIBLE) (2/2)
(SEE PAGE 4-76)
IC117
MECHA/CAMERA CONTROL/SERVO
MECHA/ CAMERA CONTROL
SERVO
CAMERA, VIDEO, AUDIO, SERVO CONTROL SIG
SWP
CLOG DET
SP DET
CAP FG
REF PILOT
ATF ERROR
IRIS PWM
HALL AD
ZM RST SENS1, 2
FC RST SENS
FP-220 (FLEXIBLE)
(SEE PAGE 4-51)
M903 LOADING MOTOR
S001 MODE SWITCH
DEW SENSOR
IC122 (1/3) LOADING MOTOR DRIVE
LOAD, UN LOAD
MSW A-C
DEW AD
CH2(B)
CH1(A)
FLYING ERASE
HO B MECHA
(SEE PAGE 4-51)
FP-249 (FP-355, 356) (FLEXIBLE)
D001 T/E LED
TAPE TOP SENSOR
H001 T REEL FG SENSOR
H002 S REEL FG SENSOR
Q001
Q002
TAPE END SENSOR
IC122 (1/3)
TAPE TOP DETECT
T REEL FG AMP
S REEL FG AMP
TAPE END DETECT
TAPE TOP
T REEL(+), (-)
T REEL FG
S REEL(+), (-)
S REEL FG
TAPE END
LED DRIVE
TAPE LED (K)
TAPE LED ON
S002
ME/MP
Hi8 MP
REC PROOF
ME/MP SW
Hi8 MP SW
REC PROOF SW
S001 CC DOWN
CC DOWN SW
IC121 (1/2) WAVE SHAPER
D PG, D FG
M901 DRUM MOTOR
DRUM PG, FG
IC121 (1/2) DRUM MOTOR DRIVE
DRUM VS
IC1501 (1/2)
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
IC122 (1/3)
LPF
DRUM ERROR
DRUM PWM
CAP ERROR
CAP PWM
M902 CAPSTAN MOTOR
CAPSTAN FG
CAPSTAN MOTOR DRIVE
WAVE SHAPER
IC001
CAP VS
CFG (+), (-)
DD-87 BOARD (1/2)
(SEE PAGE 4-111)
Q1519
LIGHT UNREG
EVF UNREG
VTR UNREG
MT UNREG
PS1504
PS1502
PS1503
PS1501
IC1501 (1/2)
DC/DC CONVERTER
DRUM/ CAPSTAN PWM DRIVE
MT 5V
A 3.2V
D 3.2V
AUDIO 3.2V
CAM -7.5V
CAM 15V
AUDIO 4.9V
RP 4.9V
A 4.9V
SW EVF 4.9V
SW EVF 15V
Q1515
Q1517
EVF DD ON
VTR DD ON
DD-87 BOARD (1/2)
(SEE PAGE 4-111)
EASY CONNECTOR MODEL
J901 BATTERY TERMINAL
BATT(+)
BATT SIG
BATT(-)
Q201, 202
BATT SW(+)
IC201 BATTERY CHARGE CONTROL
XCHARGE
CN201 EASY CONNECTOR
EZ-Y I/O
EZ-C I/O
EZ VIDEO I/O
EZ-L I/O, EZ-R I/O
EZ-21 BOARD
(SEE PAGE 4-96)
EXCEPT EASY CONNECTOR MODEL
J901 BATTERY
BATT(+)
BATT SIG
BATT(-)
DD-87 BOARD (1/2)
(SEE PAGE 4-111)

3-2. CAMERA/VIDEO BLOCK DIAGRAM (1)

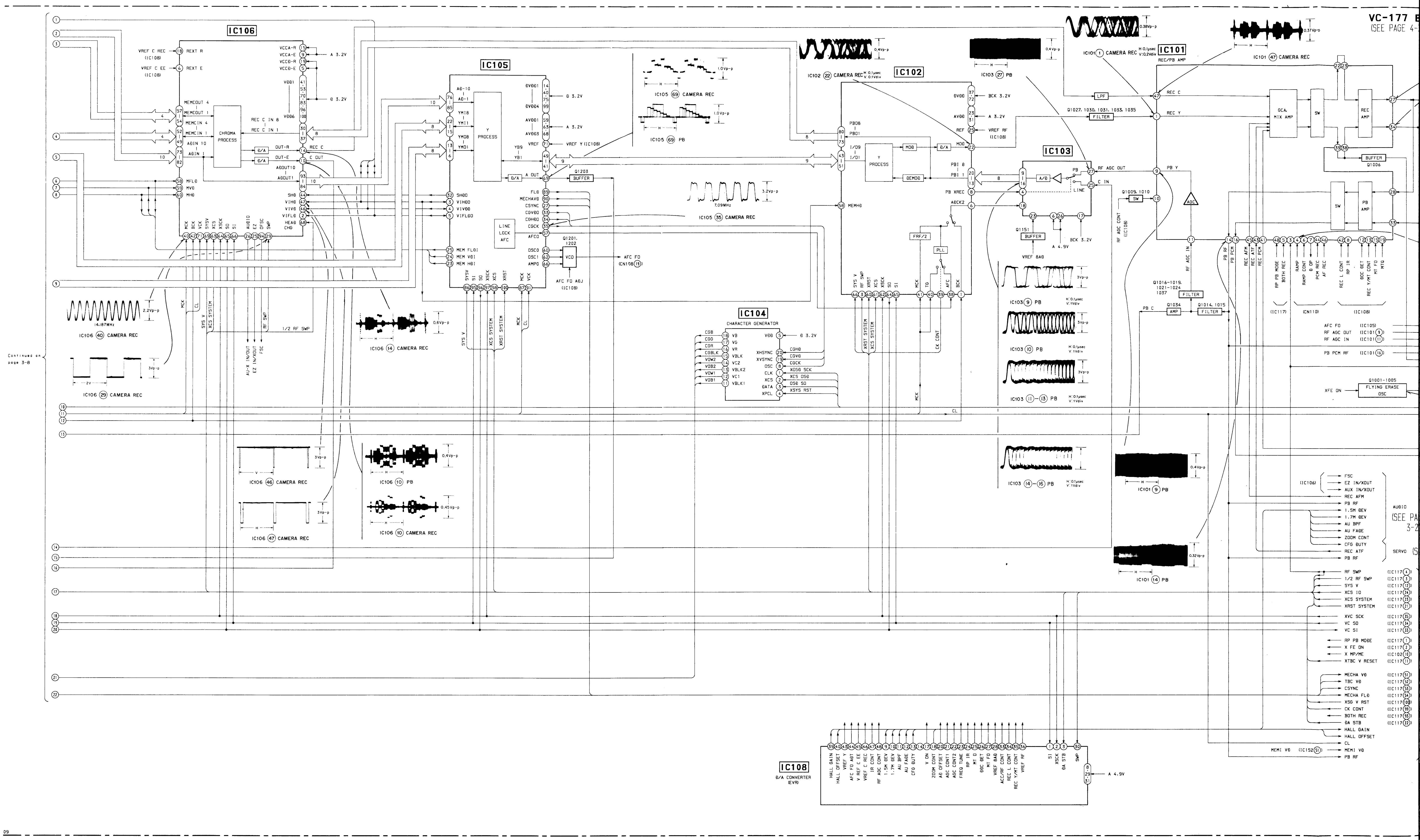


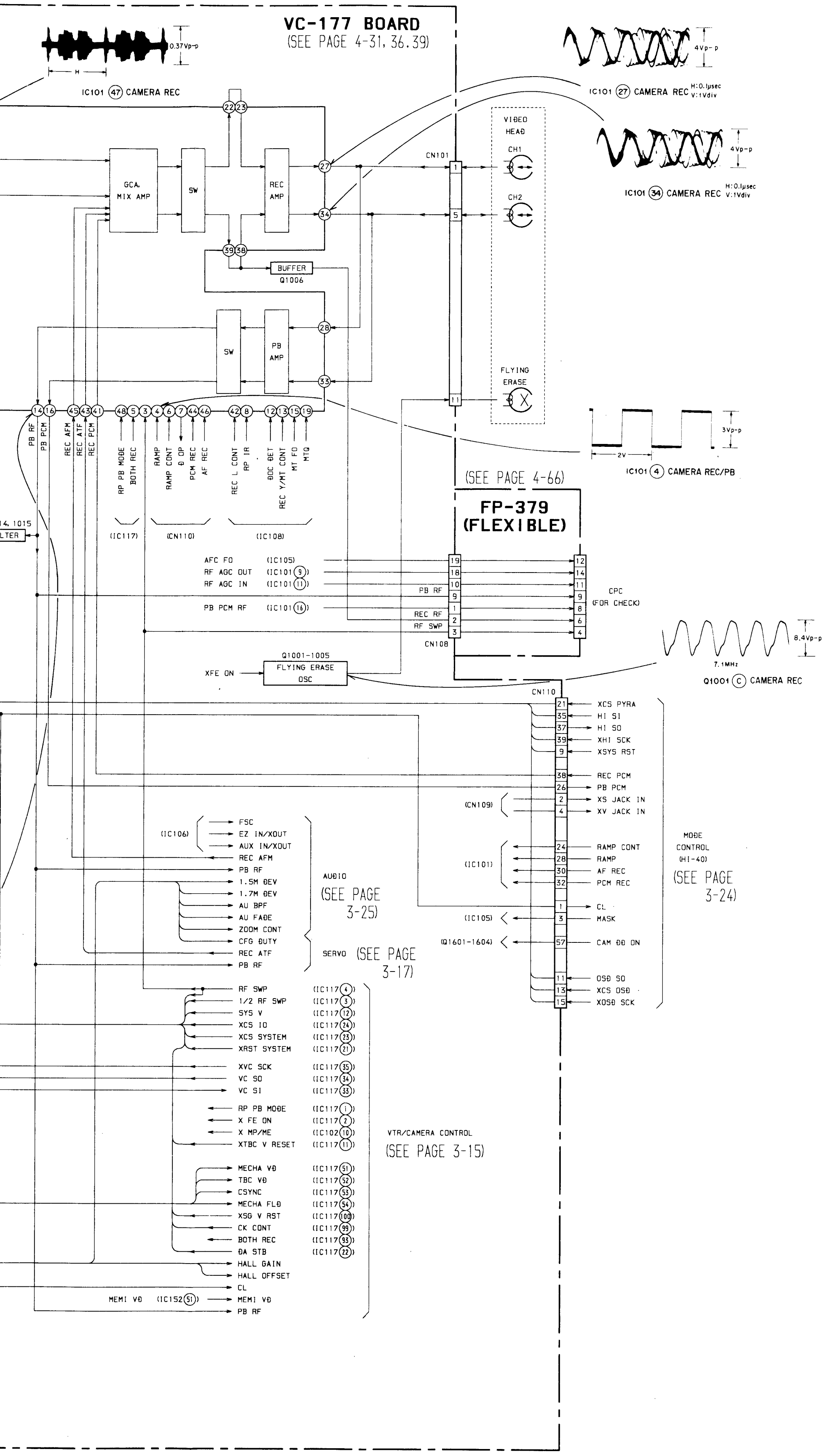
VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 43, 56)
(SEE PAGE 4-8)
CD-149 BOARD
IC401
CCD IMAGER
CCD OUT
Q401, 402
BUFFER
CN401
CN112
IC401 ⑦
IC401 ③④
IC401 ①②
0.62Vp-p
7.9Vp-p
IC202
TIMING GENERATOR
Q1601-1604
SW
CAM -7.5V
CAM 15V
CAM DD ON (IC110 ㊲)
X1601 28.375MHz
14.187MHz
2.2Vp-p
2Vp-p
IC202 ⑪ CAMERA REC/PB
IC202 ⑫ CAMERA REC/PB
IC203 ⑧ CAMERA REC
IC203 ⑧ PB
0.92Vp-p
0.4Vp-p
CLAMP
XVC SCK
VC SO
XCS SYSTEM
XRST SYSTEM
CK CONT
(B/W EVF MODEL)
B/W EVF (VF-104)
EVF Y
(SEE PAGE 3-31)
CN111
(COLOR EVF MODEL)
COLOR EVF (VF-95)
(SEE PAGE 3-28)
EVF XHD
EVF XVD
EVF R
EVF G
EVF B
IC600
SELECT SWITCH
EASY CONNECTOR MODEL
EXCEPT EASY CONNECTOR MODEL
IC129
Q1305
TRAP
V OUT
Y IN
C IN
Y OUT
C OUT
BLC IN
AGC
LPF
BPF
DDS
YX
BURST LOCK
XTAL
EXTAL
4FSC
X1305 17MHz
MON DDS BI
MON DDS WI
EVF DDS W
EVF DDS B
XCS
XSCK
SI
XCS I/O
XVC-SCK
VC-SO
MIX
COR
COG
COB
(B/W EVF MODEL)
IR CONT
IR CONT (IC108)
VIDEO
S VIDEO
VIDEO I/O
Y I/O
C I/O
XS JACK IN
S-Y I/O
S-C I/O
CN251
CN252
CN109
FP-378 (FLEXIBLE)
(SEE PAGE 4-89)
AV-36 BOARD
(SEE PAGE 4-89)
Q593
Q592
Q591
Q590
V ON
EZ IN/XOUT (IC106)
V ON (IC108)
XS JACK IN
XV JACK IN
CN110
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
CPC (FOR CHECK)
EZ I/O
CN108
(SEE PAGE 4-96)
CN201
CN204
S-C OUT
I/O CONT
Q203
S-Y OUT
VIDEO OUT
CN201 EASY CONNECTOR
EZ-21 BOARD
EASY CONNECTOR MODEL
EZ-C I/O
EZ IN/XOUT (IC106)
EZ-Y I/O
EZ VIDEO I/O
CN203
0.48Vp-p
0.3Vp-p
1.2Vp-p
IC129 ㉗ PB
IC129 ㉑ PB
IC129 ⑲ PB
IC129 ⑮ PB


IC203
S/H AGC
IC151
A/D CONVERTER
IC152
CAMERA C PROCESS
CAMERA Y PROCESS
CAM SG
IC114
ZOOM TBC PROCESS
IC703
CNR PROCESS
IC702
MEMORY
IC701
MEMORY CONTROL
MM-32 BOARD
(SEE PAGE 4-79)
DIGITAL MEMORY MODEL
IC800
RGB DECODER D/A CONV
(COLOR EVF MODEL)
IC130
VTR EE
IC115
CNR PROCESS
(TBC&DNR MODEL)
MIX
(B/W EVF MODEL)
BURST LOCK
Continued on page 3-9
IC203 (8) PB
IC152 (31) CAMERA REC
IC152 (32) CAMERA REC
IC152 (33) CAMERA REC
IC152 (34)—(38) CAMERA REC
IC701 (82)—(85), IC703 (6)—(9) CAMERA REC
IC701 (92), IC703 (59) CAMERA REC
IC701 (93), IC703 (58) CAMERA REC
IC701 (94), IC703 (57) CAMERA REC
IC701 (95)—(99), IC703 (52)—(56) CAMERA REC
IC152 (9)—(12) CAMERA REC
IC151 (22) CAMERA REC
IC151 (1)—(5), (8)—(12) CAMERA REC
IC152 (50) CAMERA REC
IC114 (18) CAMERA REC
IC152 (51) CAMERA REC
IC114 (17) CAMERA REC
IC129 (35) REC/PB
IC701 (89), IC703 (62) CAMERA REC
IC701 (90), IC703 (61) CAMERA REC
IC800 (19) CAMERA REC
IC800 (19) PB
IC800 (23) CAMERA REC
IC800 (23) PB
IC800 (14) CAMERA REC
IC800 (14) PB
IC115 (24) CAMERA REC
IC115 (25) CAMERA REC
IC115 (26) CAMERA REC
IC115 (11)—(14) CAMERA REC
IC115 (27)—(31) CAMERA REC
14.187MHz
17.734MHz

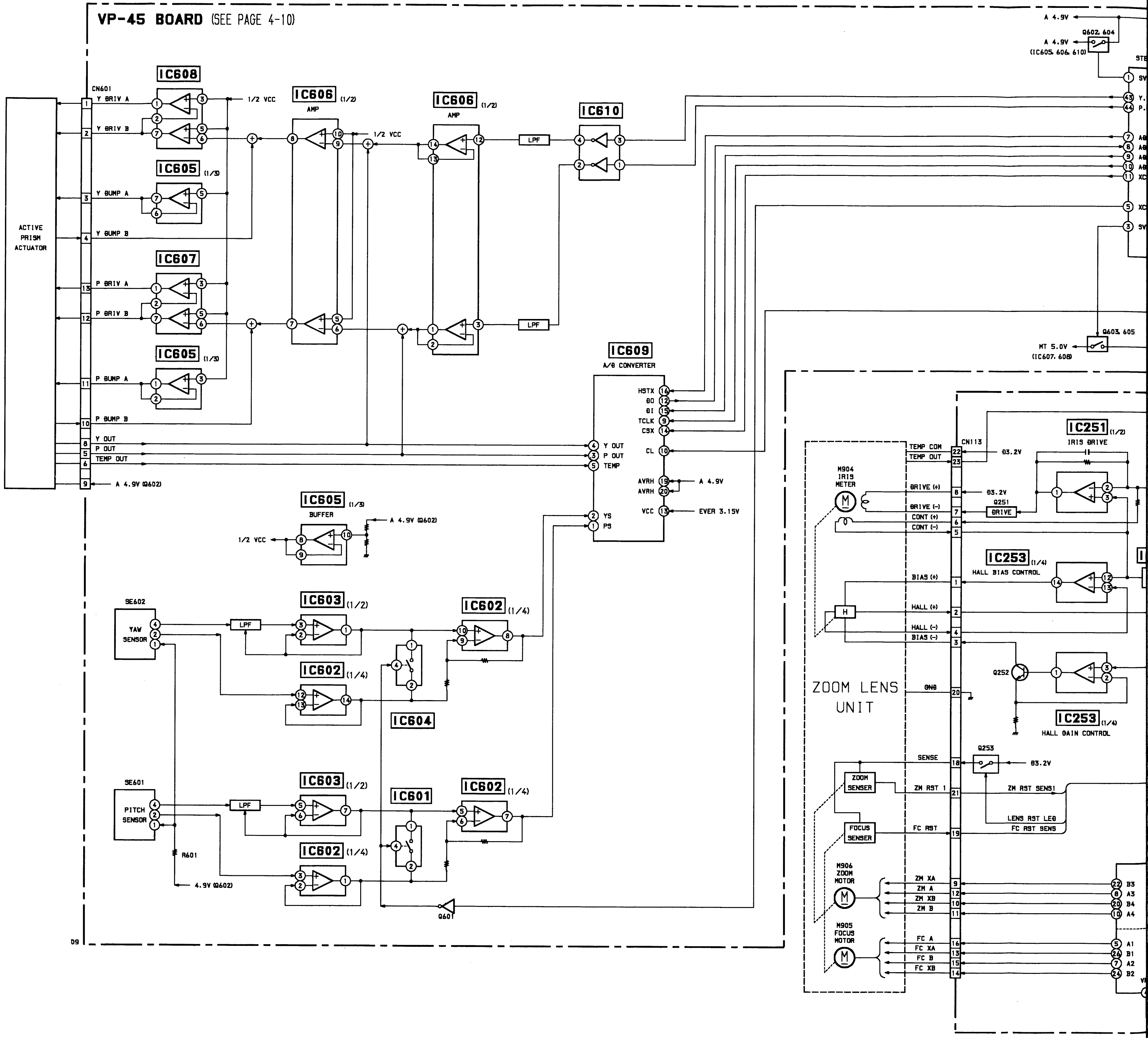
COLOR EVF MODEL:CCD-TR2300E/TR3300E
B/W EVF MODEL:CCD-TR2200E, CC886
TBC&DNR MODEL:CCD-TR2200E/TR2300E, CC886
DIGITAL MEMORY MODEL:CCD-TR3300E
EASY CONNECTOR MODEL:CCD-TR2200E/TR3300E, CC886

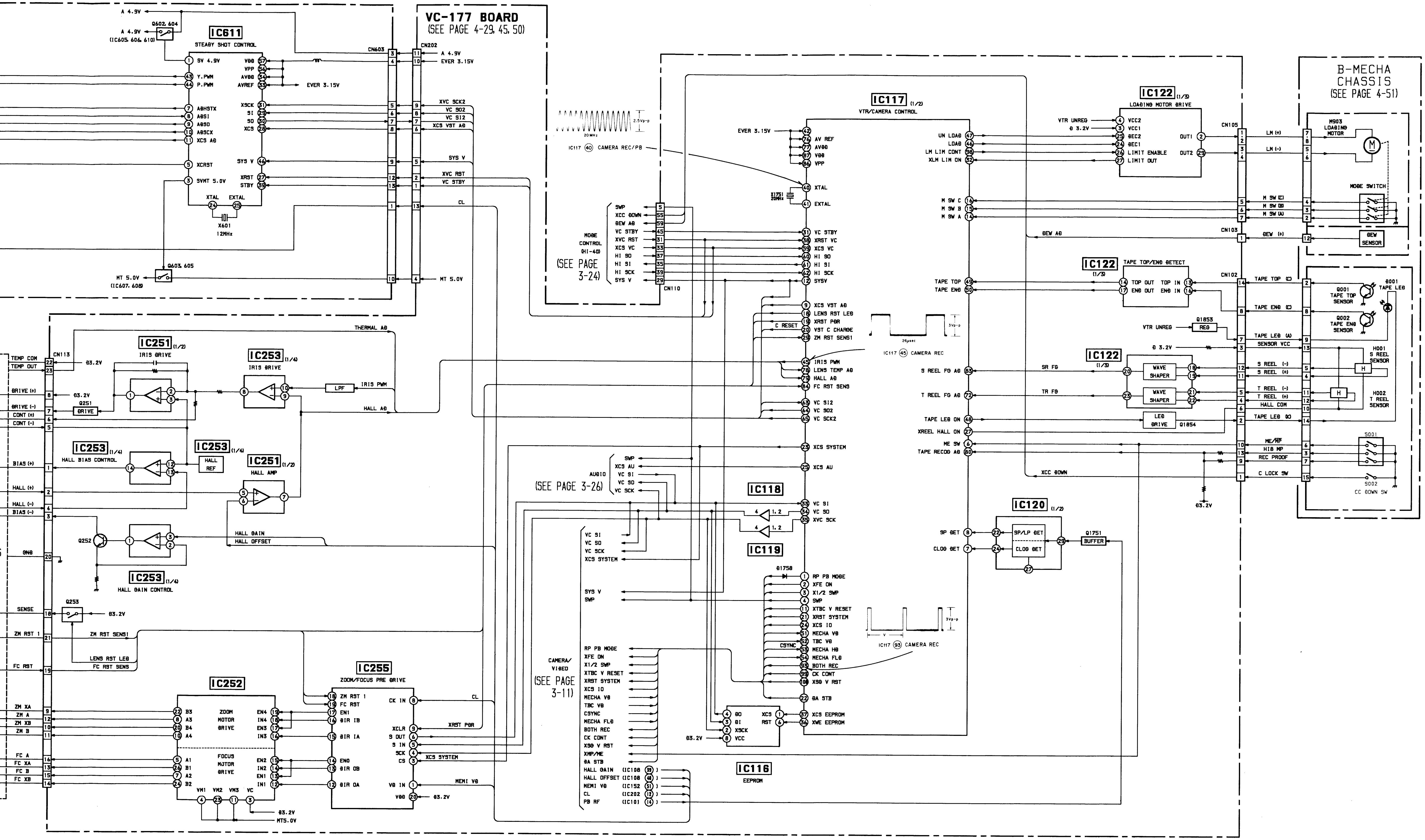
CAMERA/VIDEO BLOCK DIAGRAM(2)


VC-177 B
(SEE PAGE 4-
IC106
IC105
IC102
IC101
REC/PB AMP
IC103
IC104
CHARACTER GENERATOR
IC108
D/A CONVERTER
(EVR)
CHROMA PROCESS
Y PROCESS
LINE LOCK AFC
VCO
BUFFER
Q1203
Q1201, 1202
AFC FO ADJ
(IC108)
AFC FO
(CN108 ⑲)
VREF C REC
VREF C EE
REXT R
REXT E
VCCA-R
VCCA-E
VCCD-R
VCCD-E
A 3.2V
D 3.2V
A 4.9V
MEMCOUT 4
MEMCOUT 1
MEMCIN 4
MEMCIN 1
ADIN 10
ADIN 1
REC C IN 8
REC C IN 1
OUT-R
OUT-E
REC C
C OUT
ADOUT10
ADOUT1
D/A
MFLG
MVD
MHD
SHD
VIHD
VIVD
VIFLD
HEAD CHG
MCK
SYSV
XCS
XSCK
SO
SI
AUDIO
EZ
DFSC
SWP
AD-10
AD-1
YMI8
YMI1
YMD8
YMD1
YBD
YB1
DVDD1
DVDD4
AVDD1
AVDD3
VREF
VREF Y (IC108)
A OUT
FLD
MECHAVD
CSYNC
CDVDD
CDHDD
CDCK
AFCO
OSCO
OSCI
AMPO
MEM FLDI
MEM VDI
MEM HDI
14.187MHz
2.2Vp-p
IC106 ㊵ CAMERA REC
3Vp-p
IC106 ㉙ CAMERA REC
IC106 ⑭ CAMERA REC
0.6Vp-p
1/2 RF SWP
AUX IN/OUT
EZ IN/OUT
FSC
SYS V
XCS SYSTEM
XRST SYSTEM
RF SWP
CL
IC106 ㊻ CAMERA REC
IC106 ㊼ CAMERA REC
IC106 ⑩ PB
0.4Vp-p
IC106 ⑩ CAMERA REC
0.45Vp-p
1.0Vp-p
IC105 ㊾ CAMERA REC
IC105 ㊾ PB
3.2Vp-p
7.09MHz
IC105 ㉟ CAMERA REC
IC102 ㉒ CAMERA REC
H:0.1μsec
V:0.1V/div
IC103 ㉗ PB
IC101 ① CAMERA REC
H:0.1μsec
V:0.2V/div
0.38Vp-p
IC101 ㊼ CAMERA REC
0.37Vp-p
PBD8
PBD1
I/O9
I/O1
MOD
DEMOD
DVDD
AVDD
REF
VREF RF
(IC108)
BCK 3.2V
PBI 8
PBI 1
PB XREC
ADCK2
MEMHD
FRF/2
PLL
AFC
TG
BCK
XRST
CK CONT
A/D
PB
RF AGC OUT
C IN
LINE
Q1151
BUFFER
VREF BAD
IC103 ⑨ PB
IC103 ⑩ PB
IC103 ⑪-⑬ PB
IC103 ⑭-⑯ PB
3Vp-p
H:0.1μsec
V:1V/div
LPF
FILTER
Q1027, 1030, 1031, 1033, 1035
REC C
REC Y
PB Y
AGC
Q1009, 1010
SW
RF AGC CONT
(IC108)
RF AGC IN
Q1016-1019, 1021-1024, 1037
Q1034
AMP
Q1014, 1015
PB C
GCA, MIX AMP
REC AMP
BUFFER
Q1006
PB AMP
PB RF
PB PCM
REC AFM
REC ATF
REC PCM
RP PB MODE
BOTH REC
RAMP
RAMP CONT
B DP
PCM REC
AF REC
REC L CONT
RP IR
BDC DET
REC Y/MT CONT
MT FO
MTQ
(IC117)
(CN110)
(IC108)
AFC FO
RF AGC OUT
RF AGC IN
PB PCM RF
(IC105)
(IC101 ⑨)
(IC101 ⑪)
(IC101 ⑯)
Q1001-1005
FLYING ERASE OSC
XFE ON
IC101 ⑨ PB
IC101 ⑭ PB
0.32Vp-p
VB
VG
VR
VBLK
VC2
VBLK2
VC1
VBLK1
VDD
XHSYNC
XVSYNC
OSC
CLK
XCS
DATA
XPCL
CDHD
CDVD
CDCK
XOSD SCK
XCS OSD
OSD SO
XSYS RST
CGB
CGG
CGR
CGBLK
VDW2
VDB2
VDW1
VDB1
(IC106)
FSC
EZ IN/XOUT
AUX IN/XOUT
REC AFM
PB RF
1.5M DEV
1.7M DEV
AU BPF
AU FADE
ZOOM CONT
CFG DUTY
REC ATF
PB RF
AUDIO
(SEE PA
3-2
SERVO
RF SWP
1/2 RF SWP
SYS V
XCS IO
XCS SYSTEM
XRST SYSTEM
XVC SCK
VC SO
VC SI
RP PB MODE
X FE ON
X MP/ME
XTBC V RESET
MECHA VD
TBC VD
CSYNC
MECHA FLD
XSG V RST
CK CONT
BOTH REC
DA STB
HALL GAIN
HALL OFFSET
CL
MEMI VD
PB RF
MEMI VD (IC152 (51))
HALL GAIN
HALL OFFSET
VREF Y
AFC FO ADJ
V REF C EE
VREF C REC
IR CONT
RF AGC CONT
1.5M DEV
1.7M DEV
AU BPF
AU FADE
CFG DUTY
V ON
ZOOM CONT
AD OFFSET
AGC CONT1
AGC CONT2
FREQ TUNE
RP IR
MT IO
BDC DET
MT FO
VREF BAD
ACC/RF CONT
REC L CONT
REC Y/MT CONT
VREF RF
SI
XSCK
DA STB
SWP
Continued on page 3-8
09

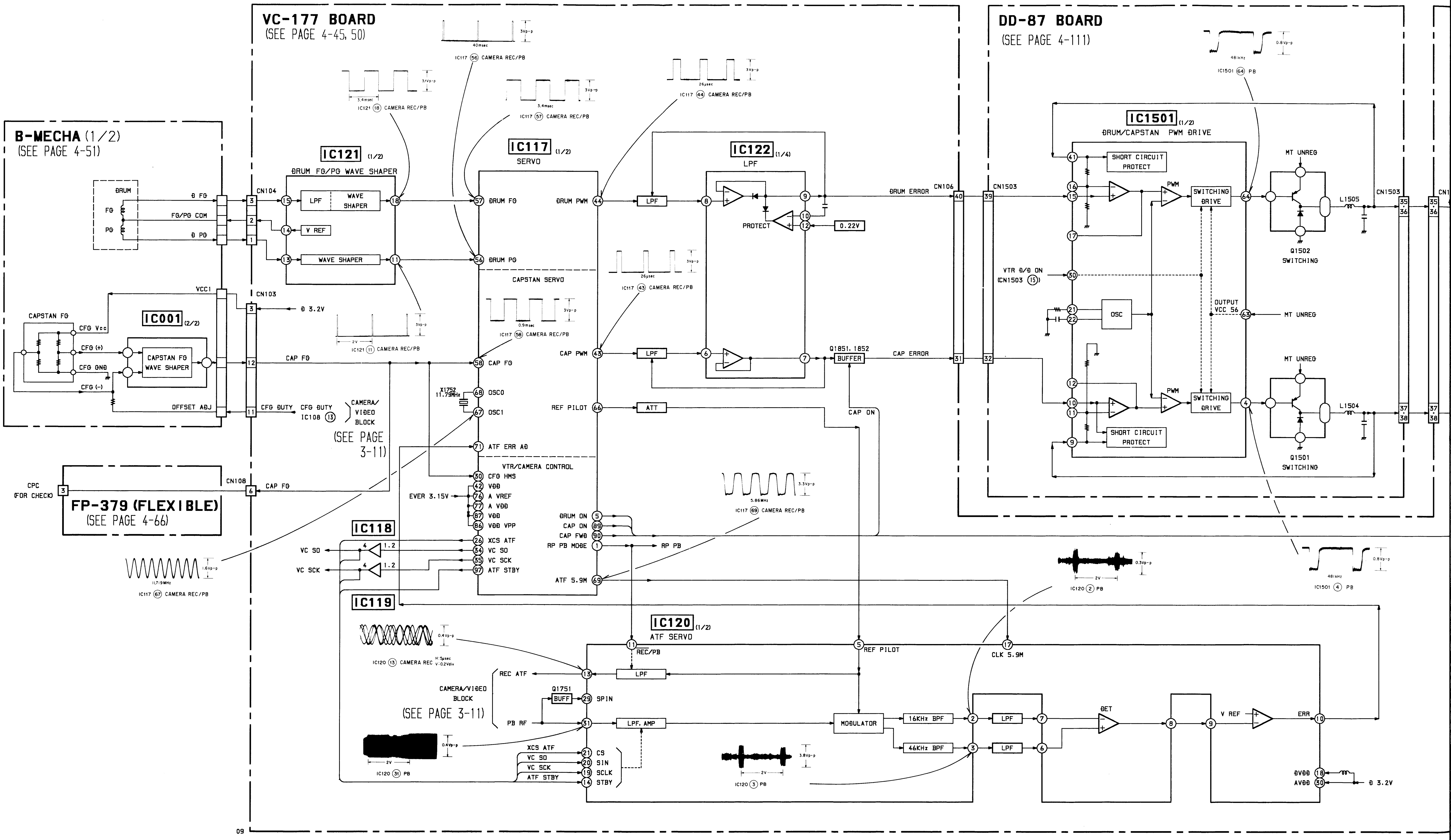

VC-177 BOARD
(SEE PAGE 4-31, 36, 39)
0.37Vp-p
IC101 (47) CAMERA REC
4Vp-p
IC101 (27) CAMERA REC H:0.1μsec V:1V/div
IC101 (34) CAMERA REC H:0.1μsec V:1V/div
GCA, MIX AMP
SW
REC AMP
PB AMP
BUFFER Q1006
CN101
VIDEO HEAD
CH1
CH2
FLYING ERASE
3Vp-p
2V
IC101 (4) CAMERA REC/PB
PB RF
PB PCM
REC AFM
REC ATF
REC PCM
RP PB MODE
BOTH REC
RAMP
RAMP CONT
Q DP
PCM REC
AF REC
REC L CONT
RP IR
QDC SET
REC Y/MT CONT
MT FO
MTQ
(IC117)
(CN110)
(IC108)
(SEE PAGE 4-66)
FP-379 (FLEXIBLE)
AFC FO (IC105)
RF AGC OUT (IC101 (3))
RF AGC IN (IC101 (11))
PB PCM RF (IC101 (16))
PB RF
REC RF
RF SWP
CN108
CPC (FOR CHECK)
8.4Vp-p
7.1MHz
Q1001 (C) CAMERA REC
XFE ON
Q1001-1005 FLYING ERASE OSC
CN110
XCS PYRA
HI SI
HI SO
XHI SCK
XSYS RST
REC PCM
PB PCM
XS JACK IN
XV JACK IN
(CN109)
(IC101)
RAMP CONT
RAMP
AF REC
PCM REC
MODE CONTROL (HI-40)
(SEE PAGE 3-24)
(IC105)
CL
MASK
(Q1601-1604)
CAM DD ON
OSD SO
XCS OSD
XOSD SCK
(IC106)
FSC
EZ IN/XOUT
AUX IN/XOUT
REC AFM
PB RF
1.5M DEV
1.7M DEV
AU BPF
AU FADE
ZOOM CONT
CFG DUTY
REC ATF
PB RF
AUDIO (SEE PAGE 3-25)
SERVO (SEE PAGE 3-17)
RF SWP (IC117 (4))
1/2 RF SWP (IC117 (3))
SYS V (IC117 (12))
XCS ID (IC117 (24))
XCS SYSTEM (IC117 (25))
XRST SYSTEM (IC117 (21))
XVC SCK (IC117 (35))
VC SO (IC117 (34))
VC SI (IC117 (33))
RP PB MODE (IC117 (1))
X FE ON (IC117 (2))
X MP/ME (IC102 (10))
XTBC V RESET (IC117 (11))
VTR/CAMERA CONTROL (SEE PAGE 3-15)
MECHA VD (IC117 (51))
TBC VD (IC117 (52))
CSYNC (IC117 (53))
MECHA FLD (IC117 (54))
XSG V RST (IC117 (100))
CK CONT (IC117 (99))
BOTH REC (IC117 (98))
DA STB (IC117 (22))
HALL GAIN
HALL OFFSET
CL
MEM1 VD (IC152 (51))
MEM1 VD
PB RF
14, 1015
LTER

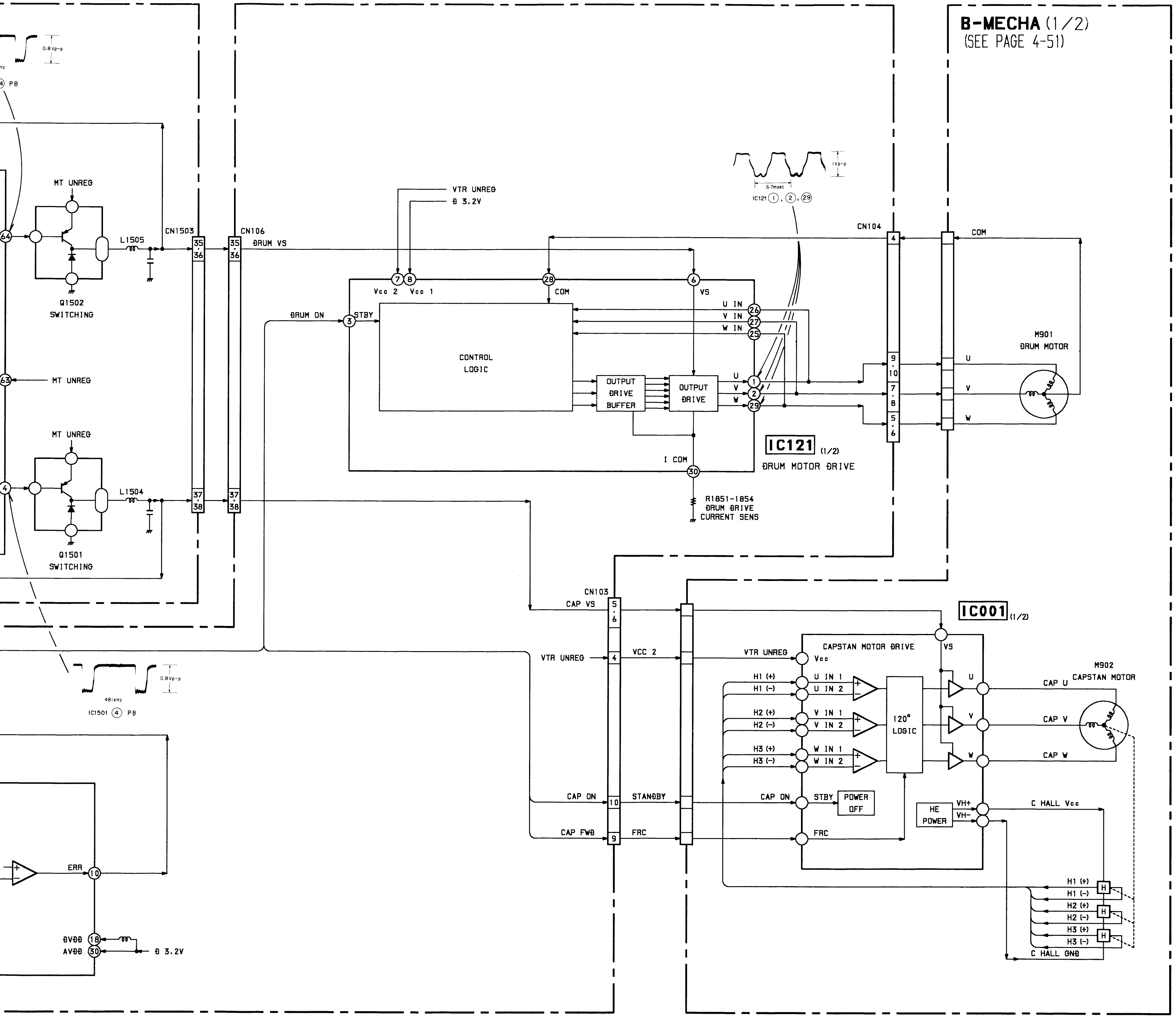
3-3. VTR/CAMERA CONTROL BLOCK DIAGRAM


VP-45 BOARD (SEE PAGE 4-10)
ACTIVE PRISM ACTUATOR
CN601
Y DRIV A
Y DRIV B
Y DUMP A
Y DUMP B
P DRIV A
P DRIV B
P DUMP A
P DUMP B
Y OUT
P OUT
TEMP OUT
A 4.9V (Q602)
IC608
1/2 VCC
IC605 (1/3)
IC607
IC606 (1/2) AMP
IC606 (1/2) AMP
1/2 VCC
LPF
IC610
IC609 A/D CONVERTER
HSTX
DO
DI
TCLK
CSX
CL
Y OUT
P OUT
TEMP
AVRH
AVRH
A 4.9V
VCC
EVER 3.15V
YS
PS
IC605 (1/3) BUFFER
A 4.9V (Q602)
1/2 VCC
SE602 YAW SENSOR
SE601 PITCH SENSOR
LPF
IC603 (1/2)
IC602 (1/4)
IC604
IC601
R601
4.9V (Q602)
Q601
A 4.9V
Q602, 604
A 4.9V
(IC605, 606, 610)
Q603, 605
MT 5.0V
(IC607, 608)
ZOOM LENS UNIT
M904 IRIS METER
TEMP COM
TEMP OUT
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
BIAS (+)
HALL (+)
HALL (-)
BIAS (-)
GND
SENSE
ZM RST 1
FC RST
ZM XA
ZM A
ZM XB
ZM B
FC A
FC XA
FC B
FC XB
H
ZOOM SENSER
FOCUS SENSER
M906 ZOOM MOTOR
M905 FOCUS MOTOR
CN113
D3.2V
D3.2V
Q251 DRIVE
IC251 (1/2) IRIS DRIVE
IC253 (1/4) HALL BIAS CONTROL
Q252
IC253 (1/4) HALL GAIN CONTROL
Q253
D3.2V
ZM RST SENS1
LENS RST LED
FC RST SENS
B3
A3
B4
A4
A1
B1
A2
B2
D9

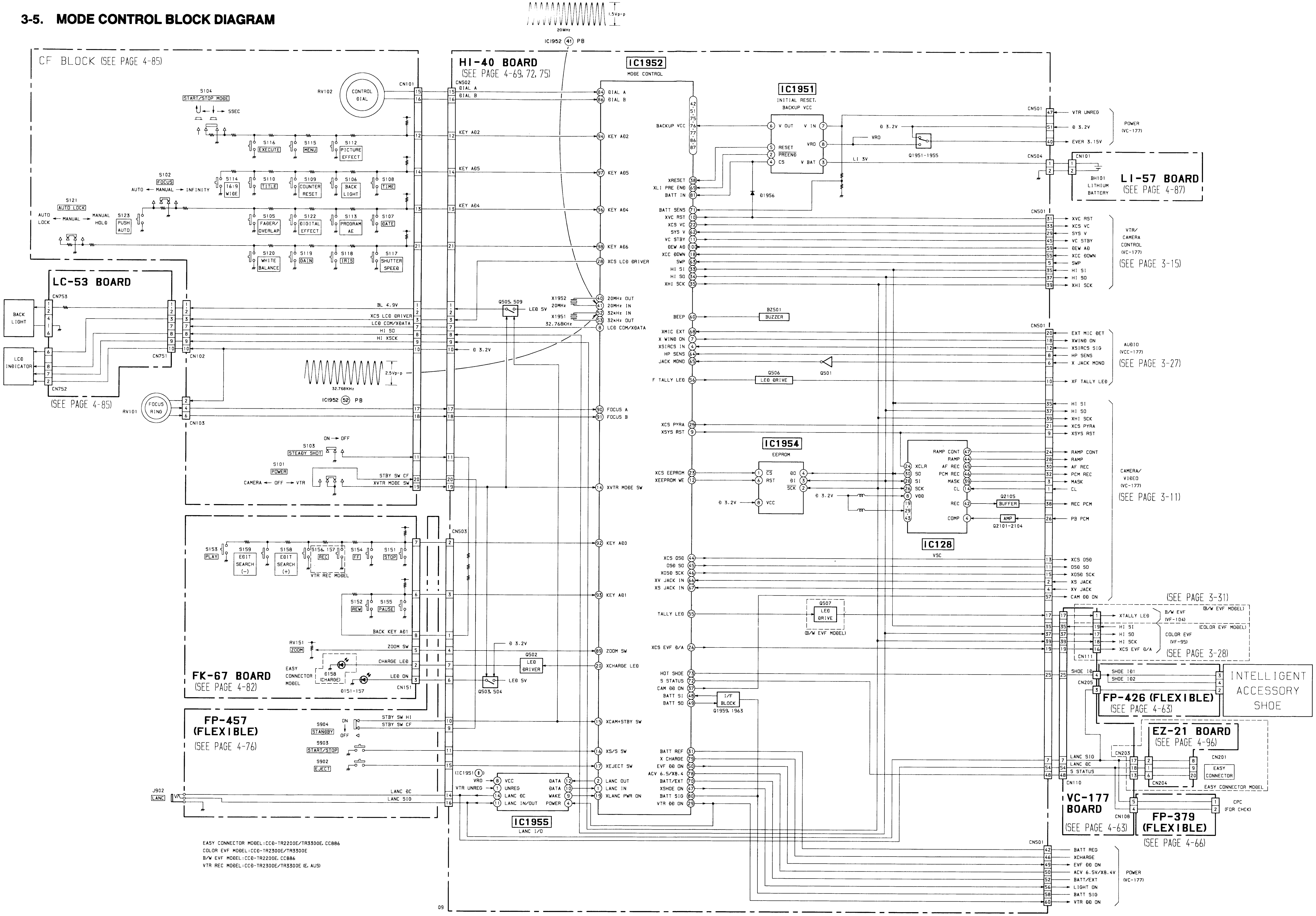

VC-177 BOARD
(SEE PAGE 4-29, 45, 50)
IC611
STEADY SHOT CONTROL
X601 12MHz
Q602, 604
Q603, 605
A 4.9V
EVER 3.15V
MT 5.0V
CN603
CN202
CN110
MODE CONTROL (HI-40)
(SEE PAGE 3-24)
IC117 (1/2)
VTR/CAMERA CONTROL
IC117 ⓸⓪ CAMERA REC/PB
20MHz
2.5Vp-p
X1751 20MHz
IC117 ⓸⑤ CAMERA REC
26μsec
3Vp-p
IC117 ⑨③ CAMERA REC
IC122 (1/3)
LOADING MOTOR DRIVE
IC122 (1/3)
TAPE TOP/END DETECT
IC122 (1/3)
WAVE SHAPER
LED DRIVE
Q1854
Q1853
REG
IC120 (1/2)
SP/LP DET
CLOG DET
Q1751
BUFFER
IC118
IC119
IC116
EEPROM
D1750
CN105
CN103
CN102
B-MECHA CHASSIS
(SEE PAGE 4-51)
M903 LOADING MOTOR
MODE SWITCH
DEW SENSOR
Q001 TAPE TOP SENSOR
Q002 TAPE END SENSOR
D001 TAPE LED
H001 S REEL SENSOR
H002 T REEL SENSOR
S001
S002 CC DOWN SW
AUDIO
(SEE PAGE 3-26)
CAMERA/VIDEO
(SEE PAGE 3-11)
CN113
IC251 (1/2)
IRIS DRIVE
IC253 (1/4)
IRIS DRIVE
LPF
IRIS PWM
THERMAL AD
HALL AD
Q251
Q252
Q253
IC253 (1/4)
HALL BIAS CONTROL
IC253 (1/4)
HALL REF
IC251 (1/2)
HALL AMP
IC253 (1/4)
HALL GAIN CONTROL
HALL GAIN
HALL OFFSET
ZM RST SENS1
LENS RST LED
FC RST SENS
IC252
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
IC255
ZOOM/FOCUS PRE DRIVE
TEMP COM
TEMP OUT
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
BIAS (+)
HALL (+)
HALL (-)
BIAS (-)
GND
SENSE
ZM RST 1
FC RST
ZM XA
ZM A
ZM XB
ZM B
FC A
FC XA
FC B
FC XB
D3.2V
MT5.0V

3-4. SERVO BLOCK DIAGRAM


VC-177 BOARD
(SEE PAGE 4-45, 50)
DD-87 BOARD
(SEE PAGE 4-111)
B-MECHA (1/2)
(SEE PAGE 4-51)
DRUM
FG
PG
D FG
FG/PG COM
D PG
CN104
IC121 (1/2)
DRUM FG/PG WAVE SHAPER
LPF
WAVE SHAPER
V REF
WAVE SHAPER
IC117 (1/2)
SERVO
DRUM FG
DRUM PG
DRUM PWM
CAPSTAN SERVO
CAP FG
CAP PWM
OSCO
OSCI
REF PILOT
ATF ERR AD
VTR/CAMERA CONTROL
CFG HMS
VDD
A VREF
A VDD
VDD
VDD VPP
XCS ATF
VC SO
VC SCK
ATF STBY
DRUM ON
CAP ON
CAP FWD
RP PB MODE
ATF 5.9M
RP PB
EVER 3.15V
X1752 11.79MHz
IC122 (1/4)
LPF
PROTECT
0.22V
DRUM ERROR
CAP ERROR
Q1851, 1852
BUFFER
CAP ON
ATT
CN106
CN1503
IC1501 (1/2)
DRUM/CAPSTAN PWM DRIVE
SHORT CIRCUIT PROTECT
PWM
SWITCHING DRIVE
VTR D/D ON (CN1503 ⑮)
OSC
OUTPUT VCC 56
MT UNREG
Q1502 SWITCHING
Q1501 SWITCHING
L1505
L1504
CN1503
CN1
VCC1
CN103
D 3.2V
CAPSTAN FG
CFG Vcc
CFG (+)
CFG GND
CFG (-)
IC001 (2/2)
CAPSTAN FG WAVE SHAPER
OFFSET ADJ
CFG DUTY
CFG DUTY IC108 ⑬
CAMERA/ VIDEO BLOCK
(SEE PAGE 3-11)
CPC (FOR CHECK)
CN108
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
IC118
IC119
VC SO
VC SCK
1.2
IC120 (1/2)
ATF SERVO
REC/PB
REF PILOT
CLK 5.9M
REC ATF
LPF
CAMERA/VIDEO BLOCK
(SEE PAGE 3-11)
Q1751
BUFF
SPIN
PB RF
LPF, AMP
MODULATOR
16KHz BPF
46KHz BPF
DET
V REF
ERR
XCS ATF
VC SO
VC SCK
ATF STBY
CS
SIN
SCLK
STBY
DVDD
AVDD
D 3.2V
IC117 ㊻ CAMERA REC/PB 40msec 3Vp-p
IC121 ⑱ CAMERA REC/PB 3.4msec 3.1Vp-p
IC117 ㊾ CAMERA REC/PB 3.4msec 3Vp-p
IC117 ㊹ CAMERA REC/PB 26μsec 3Vp-p
IC117 ㊸ CAMERA REC/PB 26μsec 3Vp-p
IC117 ㊿ CAMERA REC/PB 0.9msec 3Vp-p
IC121 ⑪ CAMERA REC/PB 2V 3Vp-p
IC117 (69) CAMERA REC/PB 5.86MHz 3.3Vp-p
IC117 (67) CAMERA REC/PB 11.79MHz 1.6Vp-p
IC1501 (64) PB 48kHz 0.8Vp-p
IC1501 ④ PB 48kHz 0.8Vp-p
IC120 ② PB 2V 0.3Vp-p
IC120 ⑬ CAMERA REC H:5μsec V:0.2Vdiv 0.4Vp-p
IC120 ㉛ PB 2V 0.4Vp-p
IC120 ③ PB 2V 3.8Vp-p
09

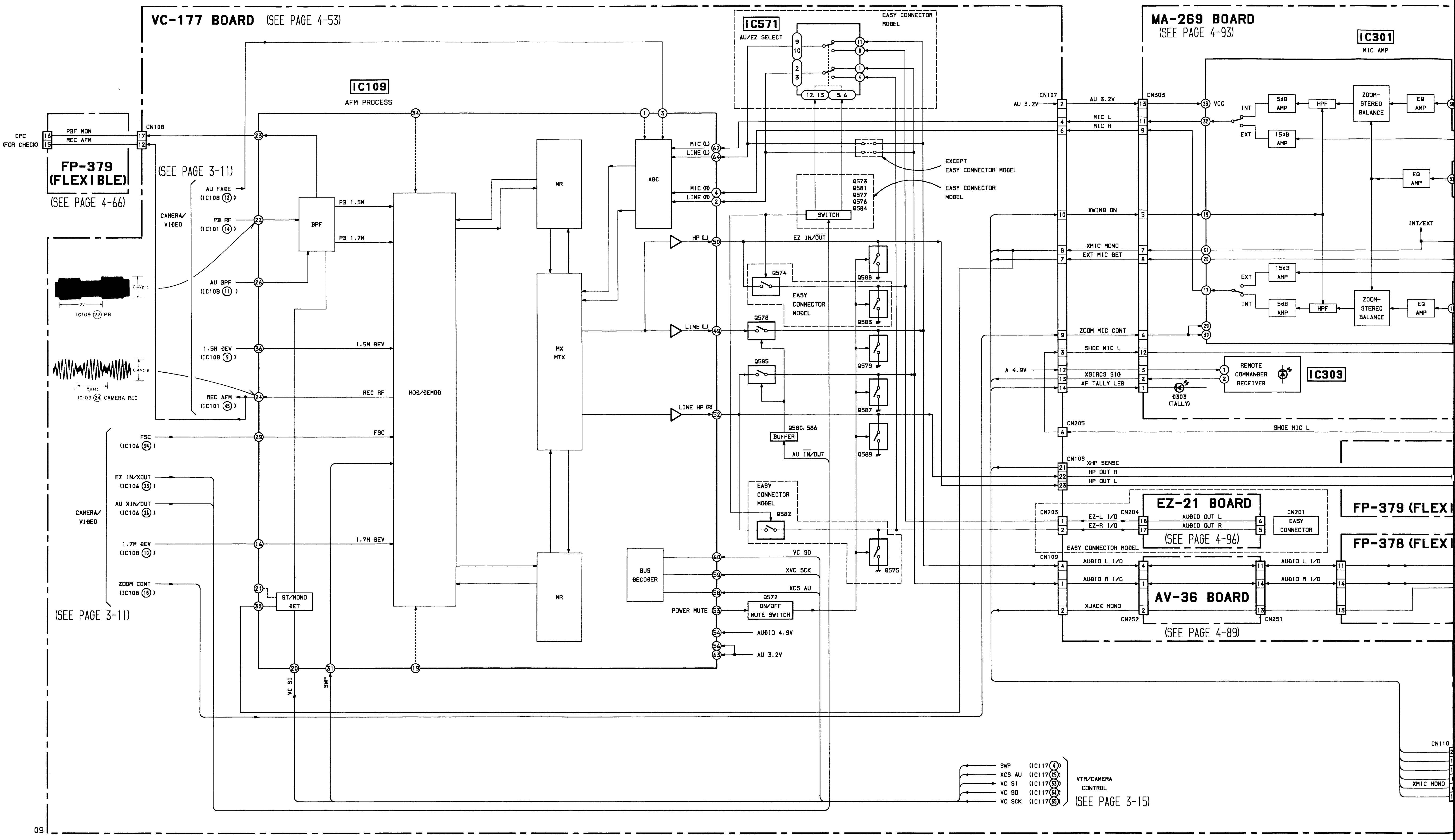

B-MECHA (1/2)
(SEE PAGE 4-51)
0.8Vp-p
PB
MT UNREG
Q1502
SWITCHING
L1505
CN1503
CN106
DRUM VS
MT UNREG
MT UNREG
Q1501
SWITCHING
L1504
VTR UNREG
D 3.2V
Vcc 2
Vcc 1
COM
VS
DRUM ON
STBY
CONTROL
LOGIC
U IN
V IN
W IN
OUTPUT
DRIVE
BUFFER
OUTPUT
DRIVE
U
V
W
I COM
R1851-1854
DRUM DRIVE
CURRENT SENS
IC121 (1/2)
DRUM MOTOR DRIVE
1Vp-p
6-7msec
IC121 ①, ②, ㉙
CN104
COM
M901
DRUM MOTOR
U
V
W
0.8Vp-p
481kHz
IC1501 ④ PB
CN103
CAP VS
VTR UNREG
VCC 2
CAP ON
STANDBY
CAP FWD
FRC
ERR
DVDD
AVDD
D 3.2V
IC001 (1/2)
CAPSTAN MOTOR DRIVE
VS
VTR UNREG
Vcc
H1 (+)
H1 (-)
U IN 1
U IN 2
H2 (+)
H2 (-)
V IN 1
V IN 2
H3 (+)
H3 (-)
W IN 1
W IN 2
120°
LOGIC
U
V
W
CAP ON
STBY
POWER
OFF
FRC
HE
POWER
VH+
VH-
M902
CAPSTAN MOTOR
CAP U
CAP V
CAP W
C HALL Vcc
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
C HALL GND

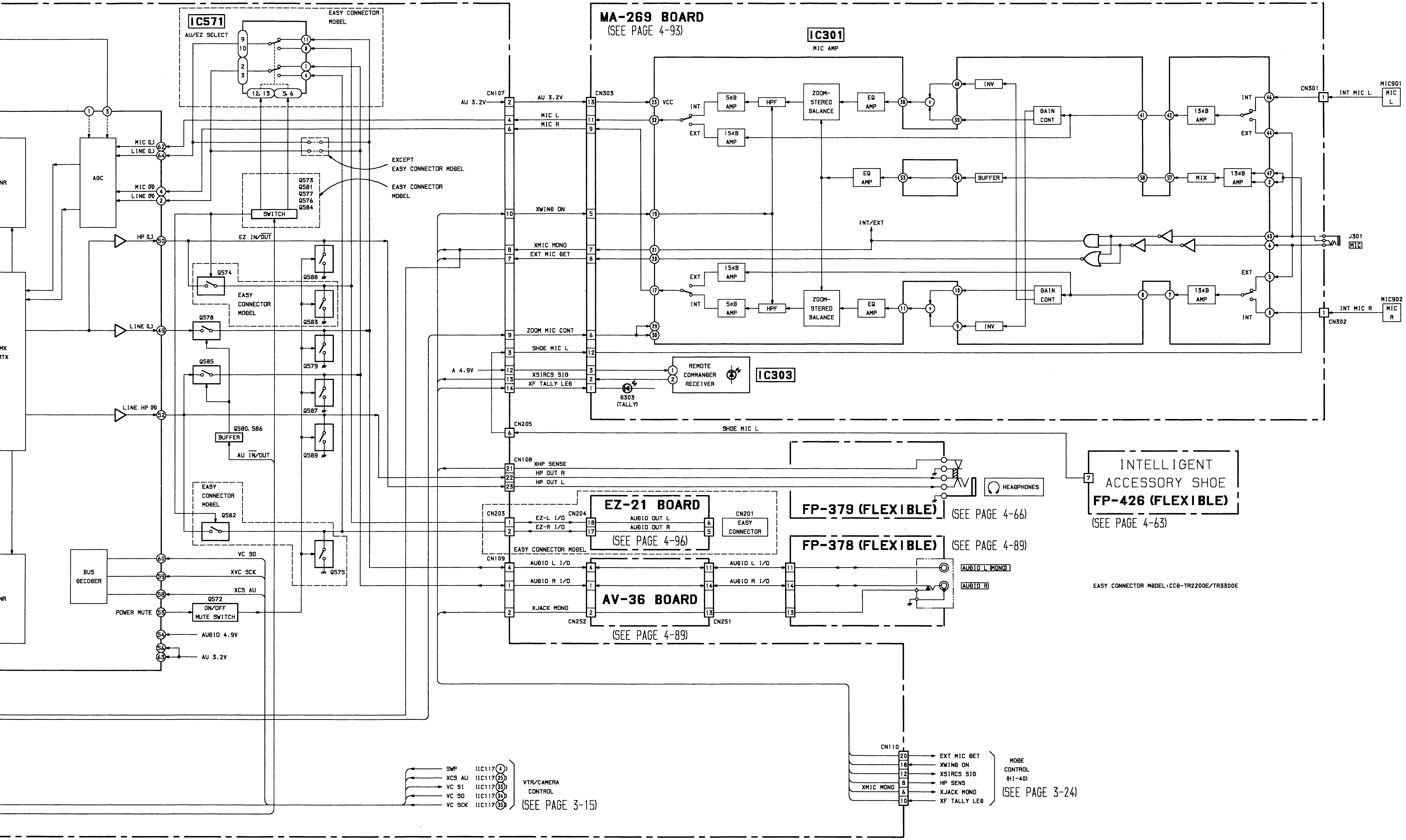
3-5. MODE CONTROL BLOCK DIAGRAM


1.5Vp-p
20MHz
IC1952 (41) PB
CF BLOCK (SEE PAGE 4-85)
S104 START/STOP MODE
5SEC
RV102 CONTROL DIAL
CN101
S116 EXECUTE
S115 MENU
S112 PICTURE EFFECT
S102 FOCUS
AUTO ← MANUAL → INFINITY
S114 16:9 WIDE
S110 TITLE
S109 COUNTER RESET
S106 BACK LIGHT
S108 TIME
S121 AUTO LOCK
AUTO LOCK ← MANUAL → MANUAL HOLD
S123 PUSH AUTO
S105 FADER/OVERLAP
S122 DIGITAL EFFECT
S113 PROGRAM AE
S107 DATE
S120 WHITE BALANCE
S119 GAIN
S118 IRIS
S117 SHUTTER SPEED
LC-53 BOARD
CN753
BACK LIGHT
LCD INDICATOR
CN752
CN751
CN102
(SEE PAGE 4-85)
RV101 FOCUS RING
CN103
BL 4.9V
XCS LCD DRIVER
LCD COM/XDATA
HI SO
HI XSCK
32.768KHz
2.5Vp-p
IC1952 (52) PB
S103 STEADY SHOT
ON → OFF
S101 POWER
CAMERA ← OFF → VTR
STBY SW CF
XVTR MODE SW
FK-67 BOARD
(SEE PAGE 4-82)
S153 PLAY
S159 EDIT SEARCH (-)
S158 EDIT SEARCH (+)
S156,157 REC
VTR REC MODEL
S154 FF
S151 STOP
S152 REW
S155 PAUSE
BACK KEY AD1
RV151 ZOOM
ZOOM SW
CHARGE LED
EASY CONNECTOR MODEL
D158 CHARGE
LED ON
D151-157
CN151
FP-457 (FLEXIBLE)
(SEE PAGE 4-76)
S904 STANDBY
ON OFF
STBY SW HI
STBY SW CF
S903 START/STOP
S902 EJECT
J902 LANC
LANC DC
LANC SIG
HI-40 BOARD
(SEE PAGE 4-69, 72, 75)
CN502
DIAL A
DIAL B
KEY AD2
KEY AD5
KEY AD4
Q505, 509
LED 5V
X1952 20MHz
X1951 32.768KHz
0 3.2V
CN503
Q502 LED DRIVER
Q503, 504
IC1951
IC1955 LANC I/O
VRO
VTR UNREG
VCC
UNREG
LANC DC
LANC IN/OUT
DATA
WAKE
POWER
IC1952 MODE CONTROL
BACKUP VCC
XRESET
XLI PRE END
BATT IN
BATT SENS
XVC RST
XCS VC
SYS V
VC STBY
DEW AD
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
BEEP
XMIC EXT
X WIND ON
XSIRCS IN
HP SENS
JACK MONO
F TALLY LED
XCS PYRA
XSYS RST
XCS EEPROM
XEEPROM WE
XCS DSO
DSO SO
XDSO SCK
XV JACK IN
XS JACK IN
TALLY LED
XCS EVF B/A
HOT SHOE
S STATUS
CAM DD ON
BATT SI
BATT SO
BATT REF
X CHARGE
EVF DD ON
ACV 6.5/X8.4
BATT/EXT
XSHOE ON
BATT SIG
VTR DD ON
KEY AD6
XCS LCD DRIVER
20MHz OUT
20MHz IN
32kHz IN
32kHz OUT
LCD COM/XDATA
FOCUS A
FOCUS B
XVTR MODE SW
KEY AD0
KEY AD1
ZOOM SW
XCHARGE LED
XCAM+STBY SW
XS/S SW
XEJECT SW
LANC OUT
LANC IN
XLANC PWR ON
IC1951 INITIAL RESET, BACKUP VCC
V OUT
V IN
RESET
PREEND
CS
VRO
V BAT
Q1951-1955
LI 3V
D1956
BZ501 BUZZER
Q506 LED DRIVE
Q501
IC1954 EEPROM
CS
RST
SCK
DO
DI
VCC
Q507 LED DRIVE
(B/W EVF MODEL)
I/F BLOCK
Q1959, 1963
IC128 VSC
XCLR
SO
SI
SCK
VDD
RAMP CONT
RAMP
AF REC
PCM REC
MASK
CL
REC
COMP
Q2105 BUFFER
AMP
Q2101-2104
CN501
VTR UNREG
D 3.2V
EVER 3.15V
POWER (VC-177)
CN504
LI-57 BOARD
(SEE PAGE 4-87)
CN101
BH101 LITHIUM BATTERY
XVC RST
XCS VC
SYS V
VC STBY
DEW AD
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
VTR/CAMERA CONTROL (VC-177)
(SEE PAGE 3-15)
EXT MIC DET
XWIND ON
XSIRCS SIG
HP SENS
X JACK MONO
AUDIO (VCC-177)
(SEE PAGE 3-27)
XF TALLY LED
XCS PYRA
XSYS RST
RAMP CONT
RAMP
AF REC
PCM REC
MASK
CL
REC PCM
PB PCM
CAMERA/VIDEO (VC-177)
(SEE PAGE 3-11)
XCS DSO
DSO SO
XDSO SCK
XS JACK
XV JACK
CAM DD ON
(SEE PAGE 3-31)
XTALLY LED
B/W EVF (VF-104)
(B/W EVF MODEL)
(COLOR EVF MODEL)
HI SI
HI SO
HI SCK
XCS EVF B/A
COLOR EVF (VF-95)
(SEE PAGE 3-28)
CN111
SHOE 101
SHOE 102
CN205
INTELLIGENT ACCESSORY SHOE
FP-426 (FLEXIBLE)
(SEE PAGE 4-63)
EZ-21 BOARD
(SEE PAGE 4-96)
CN203
CN201
EASY CONNECTOR
CN204
EASY CONNECTOR MODEL
LANC SIG
LANC DC
S STATUS
CN110
VC-177 BOARD
(SEE PAGE 4-63)
CN108
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
CPC (FOR CHCK)
BATT REG
XCHARGE
EVF DD ON
ACV 6.5V/X8.4V
BATT/EXT
LIGHT ON
BATT SIG
VTR DD ON
POWER (VC-177)
09

EASY CONNECTOR MODEL:CCD-TR2200E/TR3300E, CC886
COLOR EVF MODEL:CCD-TR2300E/TR3300E
B/W EVF MODEL:CCD-TR2200E, CC886
VTR REC MODEL:CCD-TR2300E/TR3300E (E, AUS)

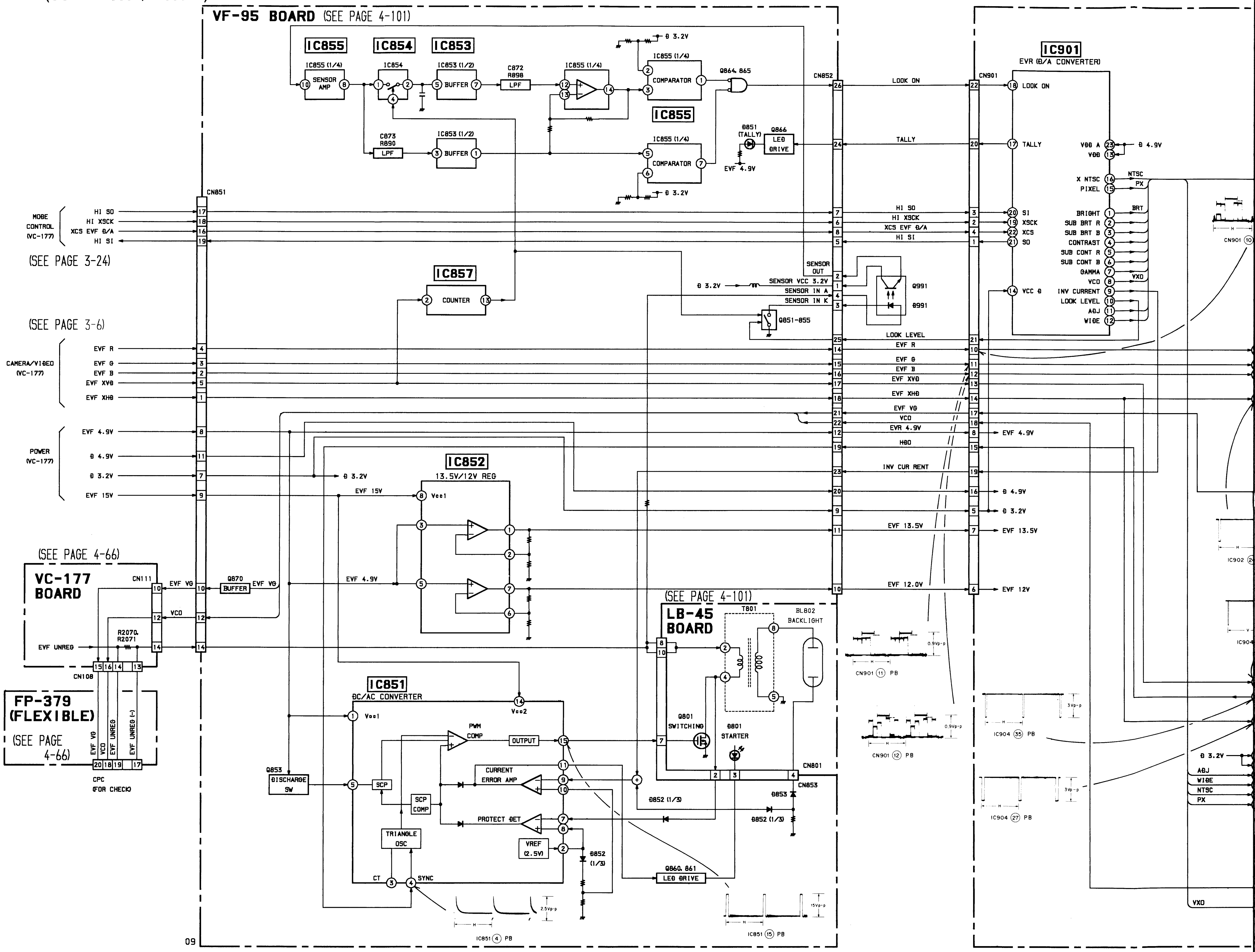
3-6. AUDIO BLOCK DIAGRAM


VC-177 BOARD (SEE PAGE 4-53)
IC109
AFM PROCESS
IC571
AU/EZ SELECT
EASY CONNECTOR MODEL
EXCEPT EASY CONNECTOR MODEL
EASY CONNECTOR MODEL
Q573 Q581 Q577 Q576 Q584
SWITCH
EZ IN/OUT
Q574
Q578
Q585
Q580, 586
BUFFER
AU IN/OUT
Q588
Q583
Q579
Q587
Q589
Q582
Q575
Q572
ON/OFF MUTE SWITCH
POWER MUTE
AUDIO 4.9V
AU 3.2V
VC SO
XVC SCK
XCS AU
BUS DECODER
NR
AGC
MX MTX
MOD/DEMOD
BPF
ST/MONO DET
PB 1.5M
PB 1.7M
1.5M DEV
REC RF
FSC
1.7M DEV
MIC (L)
LINE (L)
MIC (R)
LINE (R)
HP (L)
LINE (L)
LINE HP (R)
CN108
PBF MON
REC AFM
CPC (FOR CHECK)
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
(SEE PAGE 3-11)
CAMERA/ VIDEO
AU FADE (IC108 ⑫)
PB RF (IC101 ⑭)
AU DPF (IC108 ⑪)
1.5M DEV (IC108 ⑨)
REC AFM (IC101 ㊺)
0.4Vp-p
2V
IC109 ㉒ PB
5μsec
IC109 ㉔ CAMERA REC
FSC (IC106 (94))
EZ IN/XOUT (IC106 ㉟)
AU XIN/OUT (IC106 ㉖)
1.7M DEV (IC108 ⑩)
ZOOM CONT (IC108 ⑱)
CAMERA/ VIDEO
(SEE PAGE 3-11)
VC SI
SWP
SWP (IC117 ④)
XCS AU (IC117 ㉕)
VC SI (IC117 ㉝)
VC SO (IC117 ㉞)
VC SCK (IC117 ㉟)
VTR/CAMERA CONTROL
(SEE PAGE 3-15)
CN107
AU 3.2V
MIC L
MIC R
XWIND ON
XMIC MONO
EXT MIC DET
ZOOM MIC CONT
SHOE MIC L
A 4.9V
XSIRCS SIG
XF TALLY LED
CN205
SHOE MIC L
CN108
XHP SENSE
HP OUT R
HP OUT L
CN203
EZ-L I/O
EZ-R I/O
CN204
EASY CONNECTOR MODEL
EZ-21 BOARD
AUDIO OUT L
AUDIO OUT R
(SEE PAGE 4-96)
CN201
EASY CONNECTOR
CN109
AUDIO L I/O
AUDIO R I/O
XJACK MONO
AV-36 BOARD
CN252
CN251
(SEE PAGE 4-89)
MA-269 BOARD
(SEE PAGE 4-93)
CN303
IC301
MIC AMP
VCC
INT
EXT
5dB AMP
15dB AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INT/EXT
REMOTE COMMANDER RECEIVER
IC303
D303 (TALLY)
FP-379 (FLEXI
FP-378 (FLEXI
CN110
XMIC MONO
09

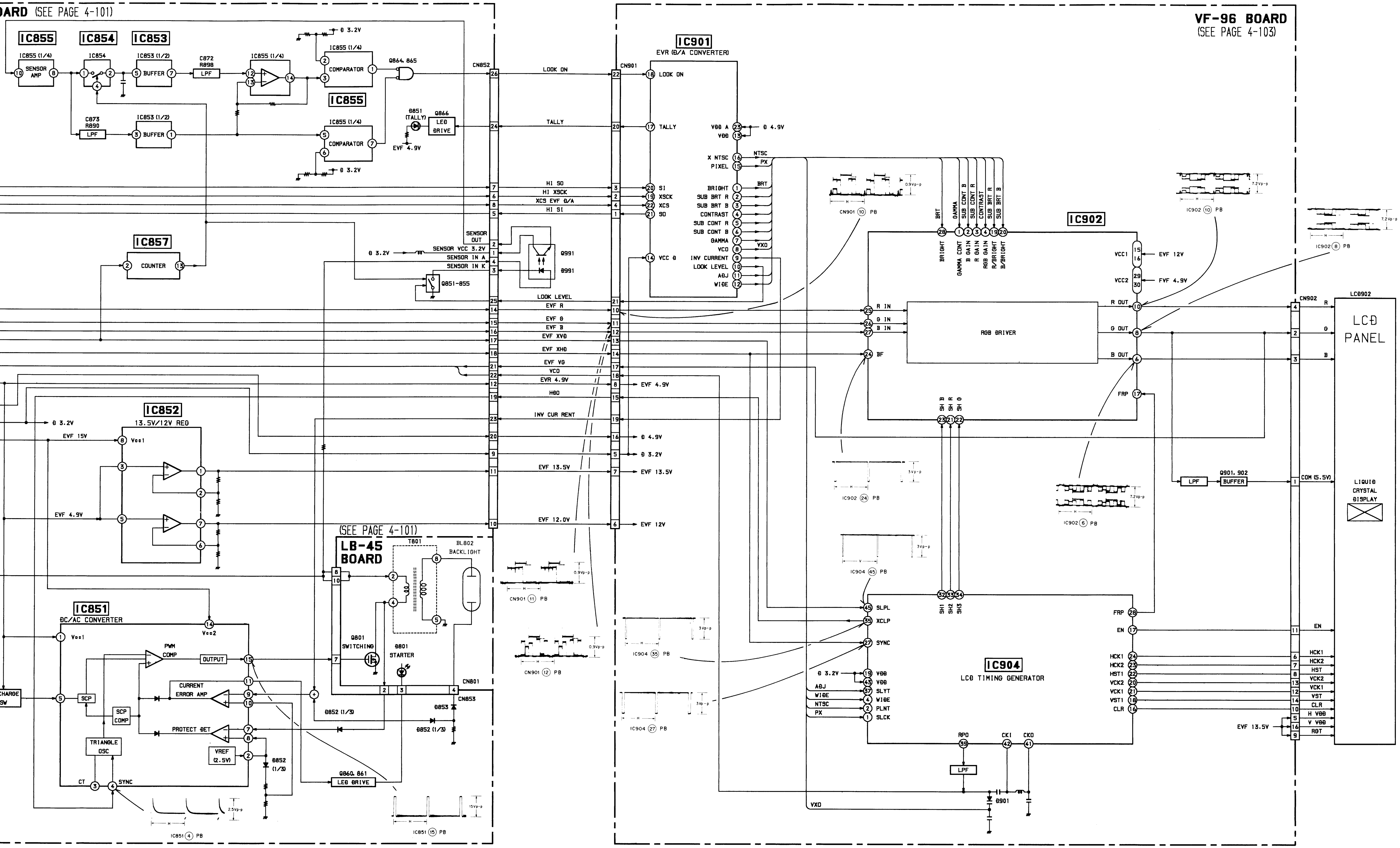

IC571
AU/EZ SELECT
EASY CONNECTOR MODEL
AGC
MIC (L)
LINE (L)
MIC (R)
LINE (R)
HP (L)
LINE (L)
LINE HP (R)
EZ IN/OUT
SWITCH
Q573
Q581
Q577
Q576
Q584
EXCEPT EASY CONNECTOR MODEL
EASY CONNECTOR MODEL
Q574
Q578
Q585
Q588
Q583
Q579
Q587
Q589
Q580, 586
BUFFER
AU IN/OUT
Q582
Q575
BUS DECODER
VC SO
XVC SCK
XCS AU
POWER MUTE
Q572
ON/OFF MUTE SWITCH
AUDIO 4.9V
AU 3.2V
CN107
AU 3.2V
MIC L
MIC R
XWIND ON
XMIC MONO
EXT MIC DET
ZOOM MIC CONT
SHOE MIC L
A 4.9V
XSIRCS SIG
XF TALLY LED
CN205
SHOE MIC L
CN108
XHP SENSE
HP OUT R
HP OUT L
CN203
CN204
EZ-L I/O
EZ-R I/O
EASY CONNECTOR MODEL
EZ-21 BOARD
AUDIO OUT L
AUDIO OUT R
(SEE PAGE 4-96)
CN201
EASY CONNECTOR
CN109
AUDIO L I/O
AUDIO R I/O
XJACK MONO
AV-36 BOARD
CN252
CN251
(SEE PAGE 4-89)
MA-269 BOARD
(SEE PAGE 4-93)
IC301
MIC AMP
CN303
VCC
INT
EXT
5dB AMP
15dB AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INV
GAIN CONT
13dB AMP
MIX
BUFFER
INT/EXT
CN301
INT MIC L
MIC901
MIC L
J301
MIC
MIC902
MIC R
INT MIC R
CN302
REMOTE COMMANDER RECEIVER
IC303
D303 (TALLY)
INTELLIGENT ACCESSORY SHOE
FP-426 (FLEXIBLE)
(SEE PAGE 4-63)
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
HEADPHONES
FP-378 (FLEXIBLE)
(SEE PAGE 4-89)
AUDIO L (MONO)
AUDIO R
EASY CONNECTOR MODEL:CCD-TR2200E/TR3300E
SWP (IC117④)
XCS AU (IC117㉕)
VC SI (IC117㉝)
VC SO (IC117㉞)
VC SCK (IC117㉟)
VTR/CAMERA CONTROL
(SEE PAGE 3-15)
CN110
EXT MIC DET
XWIND ON
XSIRCS SIG
HP SENS
XJACK MONO
XF TALLY LED
XMIC MONO
MODE CONTROL (H1-40)
(SEE PAGE 3-24)

3-7. COLOR EVF BLOCK DIAGRAM (COLOR EVF MODEL)

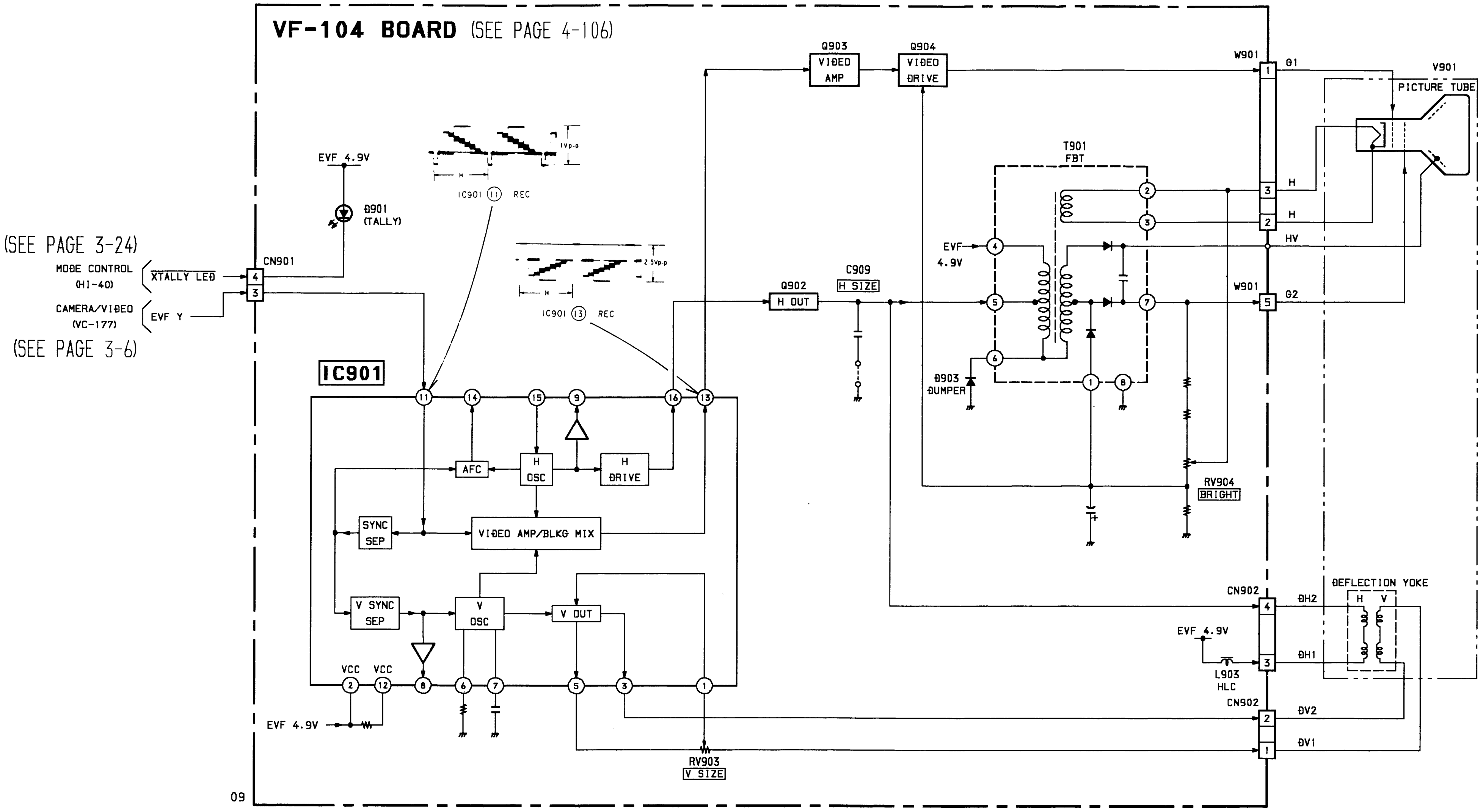
(CCD-TR2300E/TR3300E)


VF-95 BOARD (SEE PAGE 4-101)
IC855
IC854
IC853
IC855 (1/4)
SENSOR AMP
IC854
IC853 (1/2)
BUFFER
C872
R898
LPF
IC855 (1/4)
⊕ 3.2V
IC855 (1/4)
COMPARATOR
Q864, 865
IC855
C873
R890
LPF
IC853 (1/2)
BUFFER
D851 (TALLY)
Q866
LED DRIVE
IC855 (1/4)
COMPARATOR
EVF 4.9V
⊕ 3.2V
CN852
LOOK ON
TALLY
CN851
MODE CONTROL (VC-177)
HI SO
HI XSCK
XCS EVF D/A
HI SI
(SEE PAGE 3-24)
HI SO
HI XSCK
XCS EVF D/A
HI SI
IC857
COUNTER
SENSOR OUT
⊕ 3.2V
SENSOR VCC 3.2V
SENSOR IN A
SENSOR IN K
Q991
D991
Q851-855
(SEE PAGE 3-6)
CAMERA/VIDEO (VC-177)
EVF R
EVF G
EVF B
EVF XVD
EVF XHD
LOOK LEVEL
EVF R
EVF G
EVF B
EVF XVD
EVF XHD
EVF VG
VCO
EVR 4.9V
HDD
INV CUR RENT
POWER (VC-177)
EVF 4.9V
⊕ 4.9V
⊕ 3.2V
EVF 15V
⊕ 3.2V
IC852
13.5V/12V REG
EVF 15V
Vcc1
EVF 13.5V
EVF 4.9V
EVF 12.0V
(SEE PAGE 4-66)
VC-177 BOARD
CN111
EVF VG
Q870
BUFFER
EVF VG
VCO
EVF UNREG
R2070, R2071
CN108
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
EVF VG
VCO
EVF UNREG
EVF UNREG (-)
CPC (FOR CHECK)
IC851
DC/DC CONVERTER
Vcc1
Vcc2
PWM COMP
OUTPUT
Q853
DISCHARGE SW
SCP
SCP COMP
CURRENT ERROR AMP
PROTECT DET
TRIANGLE OSC
VREF (2.5V)
D852 (1/3)
CT
SYNC
Q860, 861
LED DRIVE
(SEE PAGE 4-101)
LB-45 BOARD
T801
BL802 BACKLIGHT
Q801 SWITCHING
Q801 STARTER
CN801
CN853
D853
D852 (1/3)
D852 (1/3)
2.5Vp-p
IC851 ④ PB
15Vp-p
IC851 ⑮ PB
0.9Vp-p
CN901 ⑪ PB
0.9Vp-p
CN901 ⑫ PB
3Vp-p
IC904 ㉟ PB
3Vp-p
IC904 ㉗ PB
CN901
IC901
EVR (D/A CONVERTER)
LOOK ON
TALLY
VDD A
VDD
⊕ 4.9V
X NTSC
PIXEL
NTSC
PX
SI
XSCK
XCS
SO
BRIGHT
SUB BRT R
SUB BRT B
CONTRAST
SUB CONT R
SUB CONT B
GAMMA
VCO
INV CURRENT
LOOK LEVEL
ADJ
WIDE
BRT
VXO
VCC D
EVF 4.9V
⊕ 4.9V
⊕ 3.2V
EVF 13.5V
EVF 12V
CN901 ⑩
IC902
IC904
⊕ 3.2V
ADJ
WIDE
NTSC
PX
VXO
09

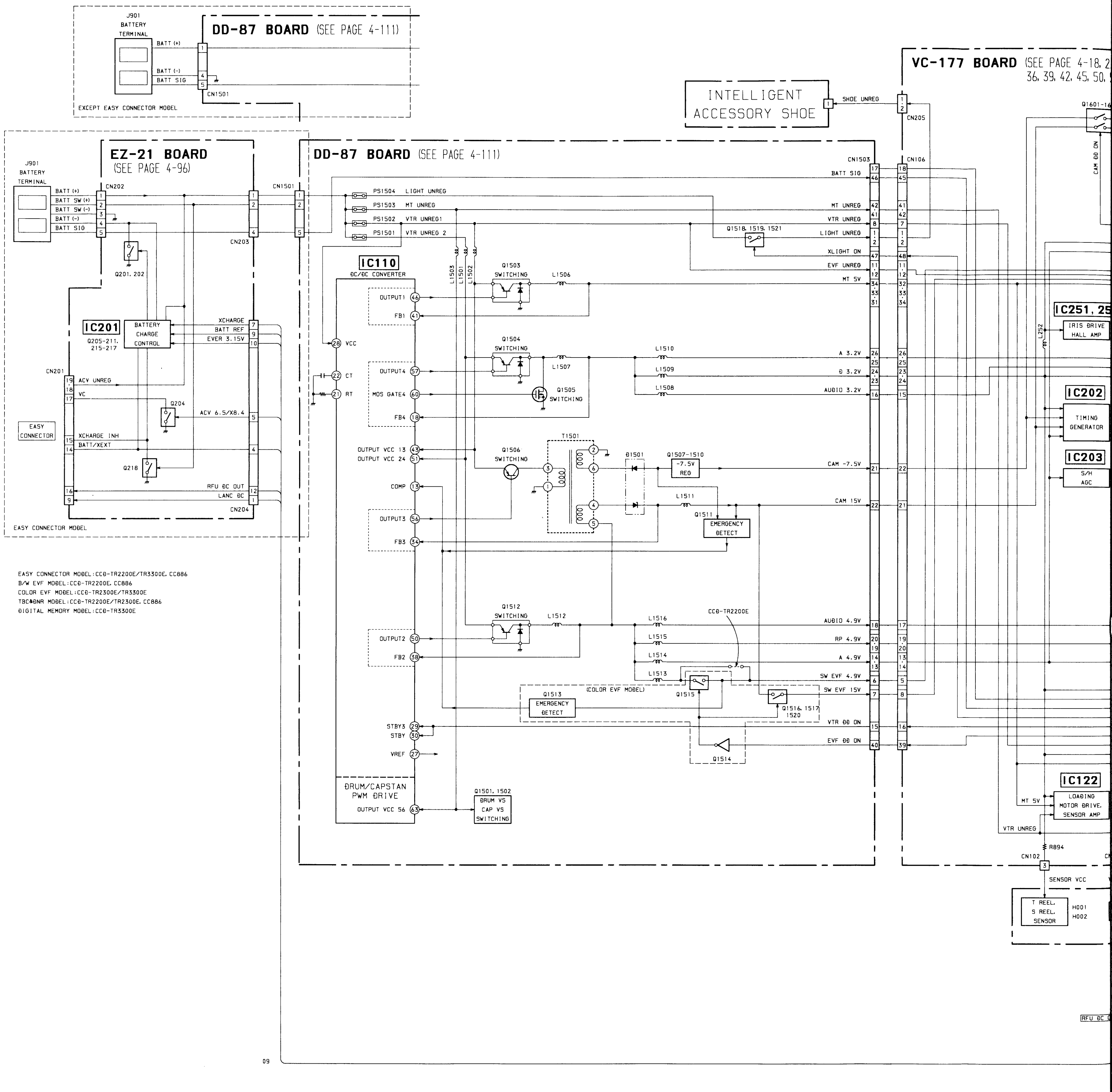
OR EVF MODEL)


ARD (SEE PAGE 4-101)
IC855
IC854
IC853
IC855 (1/4)
SENSOR AMP
IC854
IC853 (1/2)
BUFFER
C872
R898
LPF
IC855 (1/4)
COMPARATOR
Q864, 865
IC855
C873
R890
LPF
IC853 (1/2)
BUFFER
COMPARATOR
D851 (TALLY)
Q866
LED DRIVE
EVF 4.9V
D 3.2V
CN852
LOOK ON
TALLY
HI SO
HI XSCK
XCS EVF D/A
HI SI
SENSOR OUT
SENSOR VCC 3.2V
SENSOR IN A
SENSOR IN K
Q991
D991
Q851-855
IC857
COUNTER
LOCK LEVEL
EVF R
EVF G
EVF B
EVF XVD
EVF XHD
EVF VG
VCO
EVR 4.9V
HDD
INV CUR RENT
EVF 13.5V
EVF 12.0V
IC852
13.5V/12V REG
D 3.2V
EVF 15V
Vcc1
EVF 4.9V
IC851
DC/AC CONVERTER
Vcc1
Vcc2
PWM COMP
OUTPUT
CURRENT ERROR AMP
PROTECT DET
SCP
SCP COMP
TRIANGLE OSC
VREF (2.5V)
CT
SYNC
D852 (1/3)
Q860, 861
LED DRIVE
CHARGE SW
(SEE PAGE 4-101)
LB-45 BOARD
T801
BL802 BACKLIGHT
Q801 SWITCHING
D801 STARTER
CN801
CN853
IC851 ④ PB
2.5Vp-p
IC851 ⑮ PB
15Vp-p
CN901 ⑪ PB
0.9Vp-p
CN901 ⑫ PB
VF-96 BOARD
(SEE PAGE 4-103)
IC901
EVR (D/A CONVERTER)
CN901
LOOK ON
TALLY
VDD A
VDD
D 4.9V
X NTSC
PIXEL
NTSC
PX
BRIGHT
SUB BRT R
SUB BRT B
CONTRAST
SUB CONT R
SUB CONT B
GAMMA
VCO
INV CURRENT
LOOK LEVEL
ADJ
WIDE
SI
XSCK
XCS
SO
VCC D
BRT
VXO
EVF 4.9V
D 4.9V
D 3.2V
EVF 13.5V
EVF 12V
CN901 ⑩ PB
0.9Vp-p
IC902
BRIGHT
GAMMA CONT
B GAIN
R GAIN
RGB GAIN
R/BRIGHT
B/BRIGHT
SUB CONT B
SUB CONT R
CONTRAST
SUB BRT R
SUB BRT B
VCC1
VCC2
EVF 12V
EVF 4.9V
R IN
G IN
B IN
BF
RGB DRIVER
R OUT
G OUT
B OUT
FRP
SH B
SH R
SH G
IC902 ⑩ PB
7.2Vp-p
IC902 ⑧ PB
7.2Vp-p
IC902 ㉔ PB
3Vp-p
IC902 ⑥ PB
7.2Vp-p
IC904 ㊺ PB
3Vp-p
IC904 ㉟ PB
3Vp-p
IC904 ㉗ PB
3Vp-p
IC904
LCD TIMING GENERATOR
SH1
SH2
SH3
SLPL
XCLP
SYNC
D 3.2V
VDD
VDD
SLYT
WIDE
PLNT
SLCK
ADJ
WIDE
NTSC
PX
FRP
EN
HCK1
HCK2
HST1
VCK2
VCK1
VST1
CLR
RPO
CK1
CKO
LPF
D901
VXO
CN902
LPF
Q901, 902
BUFFER
COM (5.5V)
EVF 13.5V
LCD902
LCD PANEL
LIQUID CRYSTAL DISPLAY
R
G
B
EN
HCK1
HCK2
HST
VCK2
VCK1
VST
CLR
H VDD
V VDD
RGT

3-8. B/W EVF BLOCK DIAGRAM (B/W EVF MODEL)
(CCD-TR2200E, CC 886)

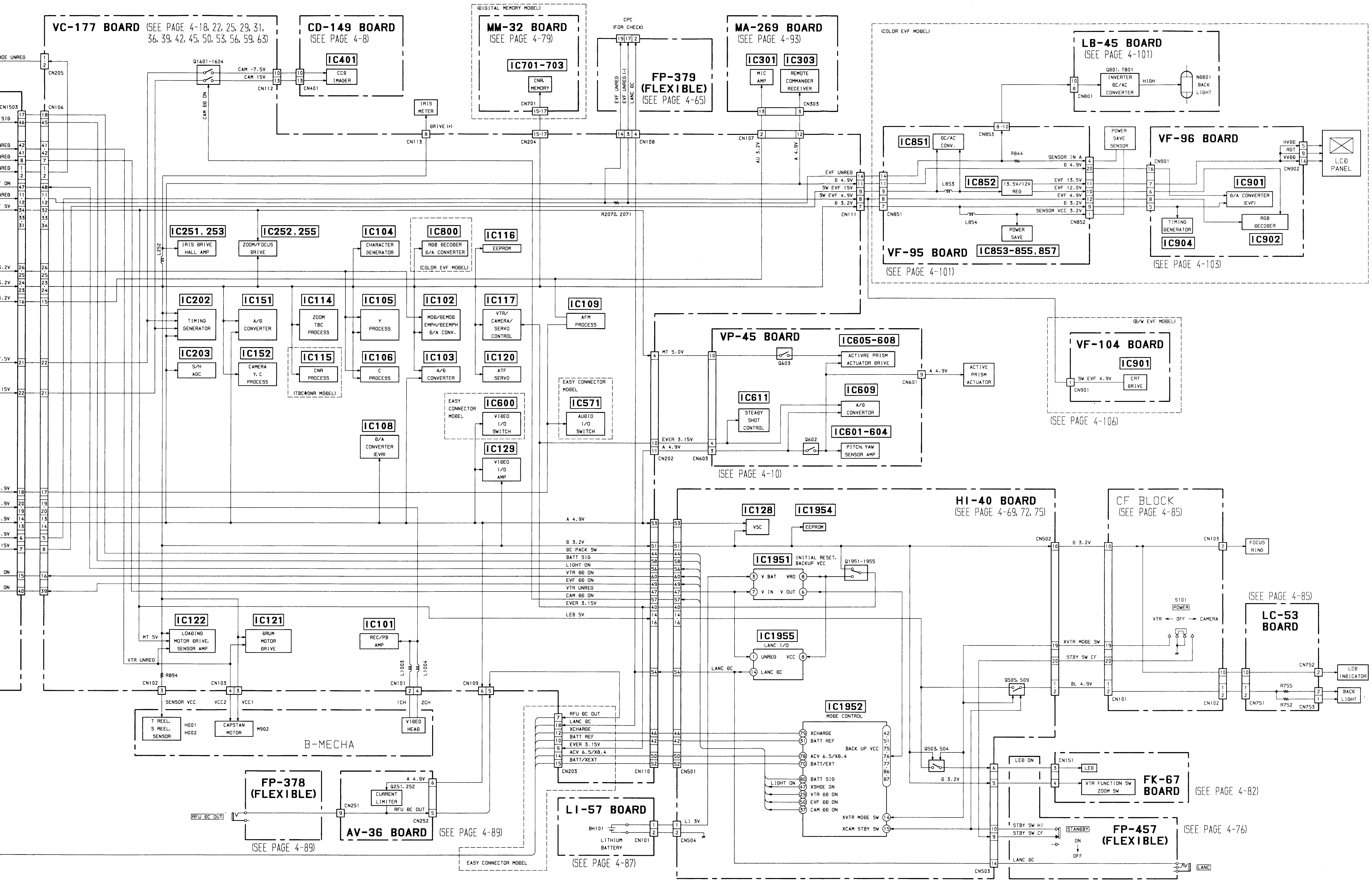

VF-104 BOARD (SEE PAGE 4-106)
(SEE PAGE 3-24)
MODE CONTROL
(HI-40)
XTALLY LED
CAMERA/VIDEO
(VC-177)
EVF Y
(SEE PAGE 3-6)
CN901
4
3
EVF 4.9V
D901
(TALLY)
1Vp-p
H
IC901 ⑪ REC
2.5Vp-p
H
IC901 ⑬ REC
IC901
⑪
⑭
⑮
⑨
⑯
⑬
AFC
H
OSC
H
DRIVE
SYNC
SEP
VIDEO AMP/BLKG MIX
V SYNC
SEP
V
OSC
V OUT
VCC
VCC
②
⑫
⑧
⑥
⑦
⑤
③
①
EVF 4.9V
RV903
V SIZE
09
Q903
VIDEO
AMP
Q904
VIDEO
DRIVE
Q902
H OUT
C909
H SIZE
T901
FBT
EVF
4.9V
④
⑤
⑥
②
③
⑦
①
⑧
D903
DUMPER
RV904
BRIGHT
W901
1
3
2
5
W901
G1
H
H
HV
G2
V901
PICTURE TUBE
CN902
4
3
CN902
2
1
EVF 4.9V
L903
HLC
DH2
DH1
DV2
DV1
DEFLECTION YOKE
H
V

3-9. POWER SUPPLY BLOCK DIAGRAM


J901
BATTERY TERMINAL
BATT (+)
BATT (-)
BATT SIG
DD-87 BOARD (SEE PAGE 4-111)
CN1501
EXCEPT EASY CONNECTOR MODEL
EZ-21 BOARD (SEE PAGE 4-96)
CN202
BATT SW (+)
BATT SW (-)
Q201, 202
CN203
IC201
BATTERY CHARGE CONTROL
Q205-211, 215-217
XCHARGE
BATT REF
EVER 3.15V
CN201
ACV UNREG
VC
Q204
ACV 6.5/X8.4
EASY CONNECTOR
XCHARGE INH
BATT/XEXT
Q218
RFU DC OUT
LANC DC
CN204
EASY CONNECTOR MODEL
INTELLIGENT ACCESSORY SHOE
SHOE UNREG
CN205
VC-177 BOARD (SEE PAGE 4-18, 2
36, 39, 42, 45, 50,
Q1601-16
CAM 6D ON
PS1504
LIGHT UNREG
PS1503
MT UNREG
PS1502
VTR UNREG1
PS1501
VTR UNREG 2
IC110
DC/DC CONVERTER
L1503
L1501
L1502
Q1503 SWITCHING
L1506
OUTPUT1
FB1
VCC
CT
RT
Q1504 SWITCHING
L1507
OUTPUT4
MOS GATE4
Q1505 SWITCHING
FB4
L1510
L1509
L1508
T1501
OUTPUT VCC 13
OUTPUT VCC 24
Q1506 SWITCHING
D1501
Q1507-1510
-7.5V REG
COMP
L1511
Q1511
EMERGENCY DETECT
OUTPUT3
FB3
Q1512 SWITCHING
L1512
L1516
L1515
L1514
L1513
CCD-TR2200E
OUTPUT2
FB2
Q1513 EMERGENCY DETECT
(COLOR EVF MODEL)
Q1515
Q1516, 1517, 1520
Q1514
STBY3
STBY
VREF
DRUM/CAPSTAN PWM DRIVE
OUTPUT VCC 56
Q1501, 1502
DRUM VS CAP VS SWITCHING
Q1518, 1519, 1521
CN1503
CN106
BATT SIG
MT UNREG
VTR UNREG
LIGHT UNREG
XLIGHT ON
EVF UNREG
MT 5V
A 3.2V
D 3.2V
AUDIO 3.2V
CAM -7.5V
CAM 15V
AUDIO 4.9V
RP 4.9V
A 4.9V
SW EVF 4.9V
SW EVF 15V
VTR DD ON
EVF DD ON
IC251, 25
IRIS DRIVE HALL AMP
L252
IC202
TIMING GENERATOR
IC203
S/H AGC
IC122
LOADING MOTOR DRIVE, SENSOR AMP
MT 5V
VTR UNREG
R894
CN102
SENSOR VCC
T REEL, S REEL, SENSOR
H001
H002
RFU DC
09

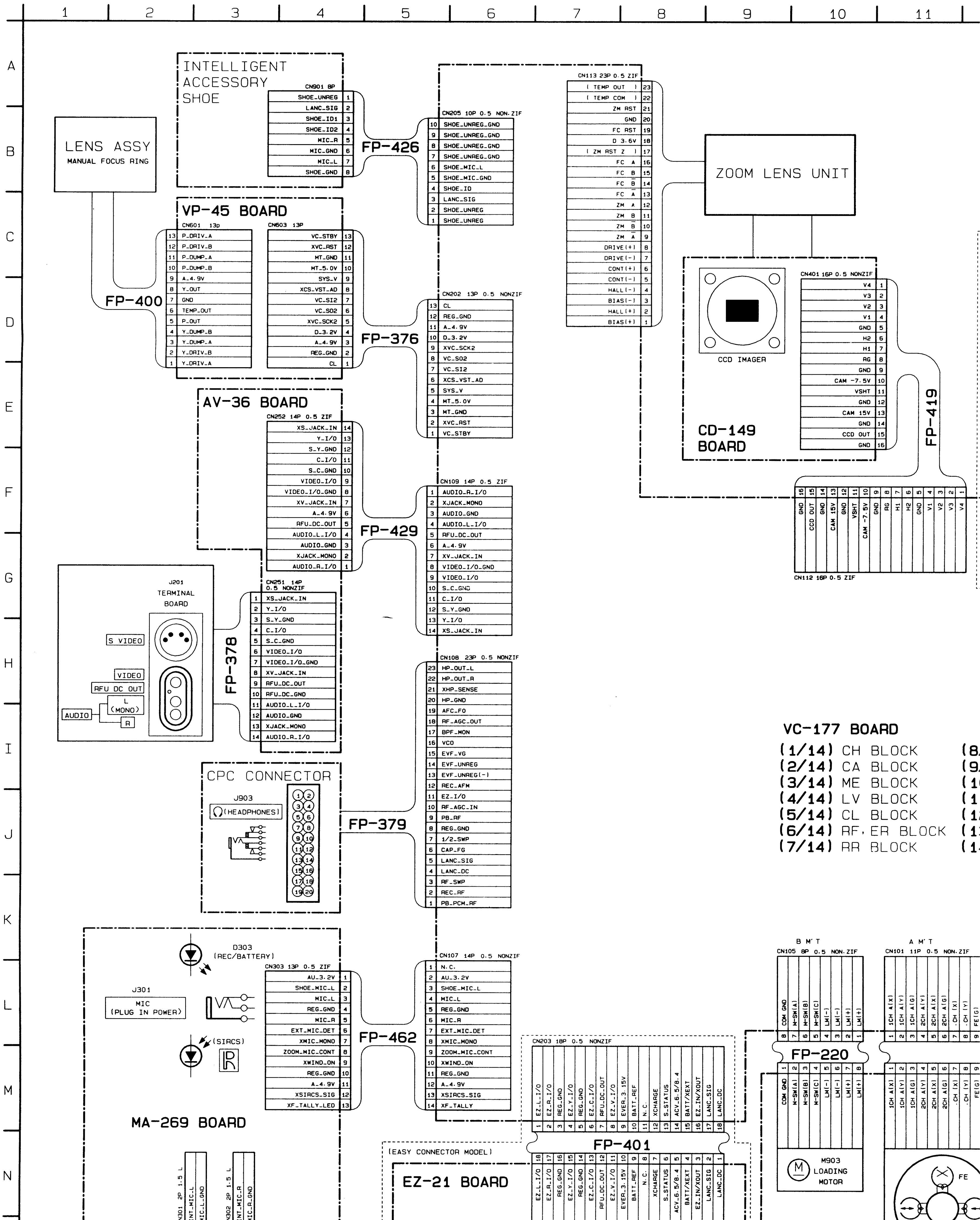
EASY CONNECTOR MODEL:CCD-TR2200E/TR3300E, CC886
B/W EVF MODEL:CCD-TR2200E, CC886
COLOR EVF MODEL:CCD-TR2300E/TR3300E
TBC&DNR MODEL:CCD-TR2200E/TR2300E, CC886
DIGITAL MEMORY MODEL:CCD-TR3300E

MC-Service


VC-177 BOARD (SEE PAGE 4-18, 22, 25, 29, 31, 36, 39, 42, 45, 50, 53, 56, 59, 63)
CD-149 BOARD (SEE PAGE 4-8)
IC401 CCD IMAGER
(DIGITAL MEMORY MODEL)
MM-32 BOARD (SEE PAGE 4-79)
IC701-703 CNR MEMORY
CPC (FOR CHECK)
FP-379 (FLEXIBLE) (SEE PAGE 4-65)
MA-269 BOARD (SEE PAGE 4-93)
IC301 MIC AMP
IC303 REMOTE COMMANDER RECEIVER
(COLOR EVF MODEL)
LB-45 BOARD (SEE PAGE 4-101)
Q801, T801 INVERTER DC/AC CONVERTER
ND801 BACK LIGHT
IC851 DC/AC CONV.
IC852 13.5V/12V REG
POWER SAVE SENSOR
VF-95 BOARD IC853-855, 857 (SEE PAGE 4-101)
VF-96 BOARD
IC901 D/A CONVERTER (EVF)
IC902 RGB DECODER
IC904 TIMING GENERATOR
(SEE PAGE 4-103)
LCD PANEL
IRIS METER
IC251, 253 IRIS DRIVE HALL AMP
IC252, 255 ZOOM/FOCUS DRIVE
IC104 CHARACTER GENERATOR
IC800 RGB DECODER D/A CONVERTER (COLOR EVF MODEL)
IC116 EEPROM
IC202 TIMING GENERATOR
IC151 A/D CONVERTER
IC114 ZOOM TBC PROCESS
IC105 Y PROCESS
IC102 MOD/DEMOD EMPH/DEEMPH D/A CONV.
IC117 VTR/CAMERA/SERVO CONTROL
IC109 AFM PROCESS
IC203 S/H AGC
IC152 CAMERA Y, C PROCESS
IC115 CNR PROCESS (TBC&DNR MODEL)
IC106 C PROCESS
IC103 A/D CONVERTER
IC120 ATF SERVO
EASY CONNECTOR MODEL IC600 VIDEO I/O SWITCH
EASY CONNECTOR MODEL IC571 AUDIO I/O SWITCH
IC108 D/A CONVERTER (EVR)
IC129 VIDEO I/O AMP
VP-45 BOARD
IC605-608 ACTIVRE PRISM ACTUATOR DRIVE
ACTIVE PRISM ACTUATOR
IC609 A/D CONVERTOR
IC611 STEADY SHOT CONTROL
IC601-604 PITCH, YAW SENSOR AMP
(SEE PAGE 4-10)
(B/W EVF MODEL)
VF-104 BOARD IC901 CRT DRIVE (SEE PAGE 4-106)
HI-40 BOARD (SEE PAGE 4-69, 72, 75)
IC128 VSC
IC1954 EEPROM
IC1951 INITIAL RESET, BACKUP VCC
IC1955 LANC I/O
IC1952 MODE CONTROL
CF BLOCK (SEE PAGE 4-85)
FOCUS RING
S101 POWER VTR ← OFF → CAMERA
(SEE PAGE 4-85) LC-53 BOARD
LCD INDICATOR
BACK LIGHT
IC122 LOADING MOTOR DRIVE, SENSOR AMP
IC121 DRUM MOTOR DRIVE
IC101 REC/PB AMP
T REEL, S REEL SENSOR
CAPSTAN MOTOR
VIDEO HEAD
B-MECHA
FP-378 (FLEXIBLE) (SEE PAGE 4-89)
RFU DC OUT
AV-36 BOARD (SEE PAGE 4-89)
Q251, 252 CURRENT LIMITER
EASY CONNECTOR MODEL
LI-57 BOARD LITHIUM BATTERY (SEE PAGE 4-87)
FK-67 BOARD (SEE PAGE 4-82)
LED
VTR FUNCTION SW ZOOM SW
FP-457 (FLEXIBLE) (SEE PAGE 4-76)
STANDBY ON OFF
LANC

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



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A
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C
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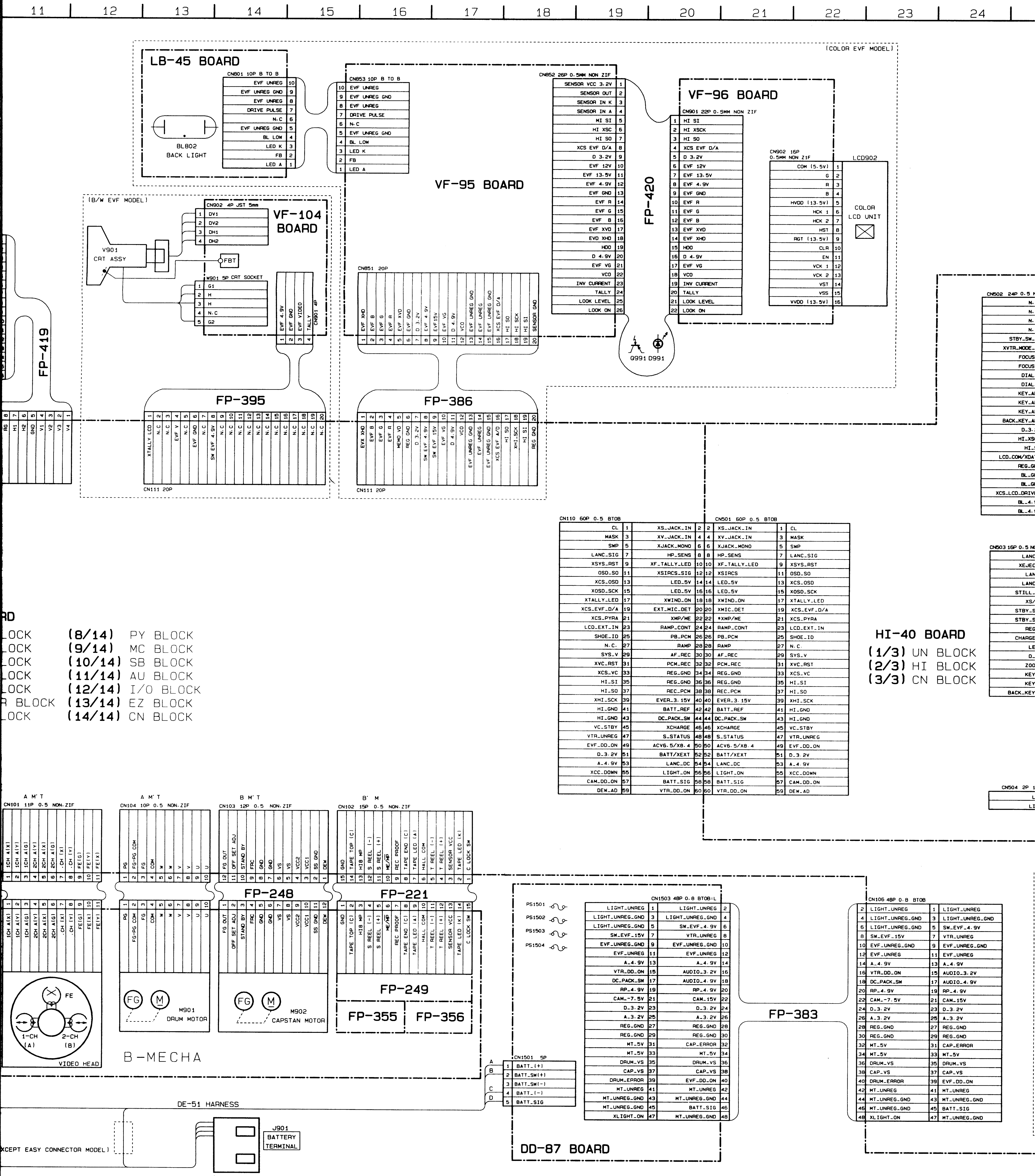
G
H
I
J
K
L
M
N
O
P
INTELLIGENT ACCESSORY SHOE
CN901 8P
SHOE_UNREG 1
LANC_SIG 2
SHOE_ID1 3
SHOE_ID2 4
MIC_R 5
MIC_GND 6
MIC_L 7
SHOE_GND 8
LENS ASSY
MANUAL FOCUS RING
FP-426
CN205 10P 0.5 NON.ZIF
10 SHOE_UNREG_GND
9 SHOE_UNREG_GND
8 SHOE_UNREG_GND
7 SHOE_UNREG_GND
6 SHOE_MIC_L
5 SHOE_MIC_GND
4 SHOE_ID
3 LANC_SIG
2 SHOE_UNREG
1 SHOE_UNREG
CN113 23P 0.5 ZIF
I TEMP OUT I 23
I TEMP COM I 22
ZM RST 21
GND 20
FC RST 19
D 3.6V 18
I ZM RST Z I 17
FC A 16
FC B 15
FC B 14
FC A 13
ZM A 12
ZM B 11
ZM B 10
ZM A 9
DRIVE(+) 8
DRIVE(-) 7
CONT(+) 6
CONT(-) 5
HALL(-) 4
BIAS(-) 3
HALL(+) 2
BIAS(+) 1
ZOOM LENS UNIT
VP-45 BOARD
CN601 13p
13 P_DRIV_A
12 P_DRIV_B
11 P_DUMP_A
10 P_DUMP_B
9 A_4.9V
8 Y_OUT
7 GND
6 TEMP_OUT
5 P_OUT
4 Y_DUMP_B
3 Y_DUMP_A
2 Y_DRIV_B
1 Y_DRIV_A
CN603 13P
VC_STBY 13
XVC_RST 12
MT_GND 11
MT_5.0V 10
SYS_V 9
XCS_VST_AD 8
VC_SI2 7
VC_SO2 6
XVC_SCK2 5
D_3.2V 4
A_4.9V 3
REG_GND 2
CL 1
FP-400
FP-376
CN202 13P 0.5 NONZIF
13 CL
12 REG_GND
11 A_4.9V
10 D_3.2V
9 XVC_SCK2
8 VC_SO2
7 VC_SI2
6 XCS_VST_AD
5 SYS_V
4 MT_5.0V
3 MT_GND
2 XVC_RST
1 VC_STBY
CCD IMAGER
CD-149 BOARD
CN401 16P 0.5 NONZIF
V4 1
V3 2
V2 3
V1 4
GND 5
H2 6
H1 7
RG 8
GND 9
CAM -7.5V 10
VSHT 11
GND 12
CAM 15V 13
GND 14
CCD OUT 15
GND 16
FP-419
GND 16
CCD OUT 15
GND 14
CAM 15V 13
GND 12
VSHT 11
CAM -7.5V 10
GND 9
RG 8
H1 7
H2 6
GND 5
V1 4
V2 3
V3 2
V4 1
CN112 16P 0.5 ZIF
AV-36 BOARD
CN252 14P 0.5 ZIF
XS_JACK_IN 14
Y_I/O 13
S_Y_GND 12
C_I/O 11
S_C_GND 10
VIDEO_I/O 9
VIDEO_I/O_GND 8
XV_JACK_IN 7
A_4.9V 6
RFU_DC_OUT 5
AUDIO_L_I/O 4
AUDIO_GND 3
XJACK_MONO 2
AUDIO_R_I/O 1
FP-429
CN109 14P 0.5 ZIF
1 AUDIO_R_I/O
2 XJACK_MONO
3 AUDIO_GND
4 AUDIO_L_I/O
5 RFU_DC_OUT
6 A_4.9V
7 XV_JACK_IN
8 VIDEO_I/O_GND
9 VIDEO_I/O
10 S_C_GND
11 C_I/O
12 S_Y_GND
13 Y_I/O
14 XS_JACK_IN
J201 TERMINAL BOARD
S VIDEO
VIDEO
RFU DC OUT
L (MONO)
AUDIO
R
FP-378
CN251 14P 0.5 NONZIF
1 XS_JACK_IN
2 Y_I/O
3 S_Y_GND
4 C_I/O
5 S_C_GND
6 VIDEO_I/O
7 VIDEO_I/O_GND
8 XV_JACK_IN
9 RFU_DC_OUT
10 RFU_DC_GND
11 AUDIO_L_I/O
12 AUDIO_GND
13 XJACK_MONO
14 AUDIO_R_I/O
CN108 23P 0.5 NONZIF
23 HP_OUT_L
22 HP_OUT_R
21 XHP_SENSE
20 HP_GND
19 AFC_FO
18 RF_AGC_OUT
17 BPF_MON
16 VCO
15 EVF_VG
14 EVF_UNREG
13 EVF_UNREG(-)
12 REC_AFM
11 EZ_I/O
10 RF_AGC_IN
9 PB_RF
8 REG_GND
7 1/2_SWP
6 CAP_FG
5 LANC_SIG
4 LANC_DC
3 RF_SWP
2 REC_RF
1 PB_PCM_RF
CPC CONNECTOR
J903
(HEADPHONES)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
FP-379
VC-177 BOARD
(1/14) CH BLOCK
(2/14) CA BLOCK
(3/14) ME BLOCK
(4/14) LV BLOCK
(5/14) CL BLOCK
(6/14) RF, ER BLOCK
(7/14) RR BLOCK
D303 (REC/BATTERY)
J301
MIC (PLUG IN POWER)
(SIRCS)
MA-269 BOARD
CN303 13P 0.5 ZIF
AU_3.2V 1
SHOE_MIC_L 2
MIC_L 3
REG_GND 4
MIC_R 5
EXT_MIC_DET 6
XMIC_MONO 7
ZOOM_MIC_CONT 8
XWIND_ON 9
REG_GND 10
A_4.9V 11
XSIRCS_SIG 12
XF_TALLY_LED 13
FP-462
CN107 14P 0.5 NONZIF
1 N.C.
2 AU_3.2V
3 SHOE_MIC_L
4 MIC_L
5 REG_GND
6 MIC_R
7 EXT_MIC_DET
8 XMIC_MONO
9 ZOOM_MIC_CONT
10 XWIND_ON
11 REG_GND
12 A_4.9V
13 XSIRCS_SIG
14 XF_TALLY
CN203 18P 0.5 NONZIF
1 EZ_L_I/O
2 EZ_R_I/O
3 REG_GND
4 EZ_Y_I/O
5 REG_GND
6 EZ_C_I/O
7 RFU_DC_OUT
8 EZ_V_I/O
9 EVER_3.15V
10 BATT_REF
11 N.C.
12 XCHARGE
13 S_STATUS
14 ACV_6.5/8.4
15 BATT/XEXT
16 EZ_IN/XOUT
17 LANC_SIG
18 LANC_DC
FP-401
(EASY CONNECTOR MODEL)
EZ-21 BOARD
EASY CONNECTION
CN204 18P 0.5 NONZIF
CN301 2P 1.5 L
1 INT_MIC_L
2 MIC_L_GND
CN302 2P 1.5 L
1 INT_MIC_R
2 MIC_R_GND
MIC901 (L CH)
MIC
MIC902 (R CH)
CN201 20P
S_Y_OUT 1 20 S_STATUS
S_C_OUT 2 19 ACV_UNREG
VIDEO_OUT 3 18 ACV_UNREG
VIDEO_GND 4 17 V.C.
AUDIO_OUT_R 5 16 RF_DC_OUT
AUDIO_OUT_L 6 15 XCHARGE_INH
AUDIO_GND 7 14 BATT/XEXT
LANC_SIG 8 13 ACV_GND
LANC_DC 9 12 ACV_GND
LANC_GND 10 11 I/O_CONT
CN203 4P
BATT_SIG 4
UNREG_GND 3
BATT_SW(+) 2
UNREG 1
D
C
B
A
CN202 5P
BATT_SIG 5
BATT(-) 4
BATT_SW(-) 3
BATT_SW(+) 2
BATT(+) 1
(EXCEPT EASY CONNECTOR
B M'T
CN105 8P 0.5 NON.ZIF
COM GND
M-SW(A)
M-SW(B)
M-SW(C)
LM(-)
LM(-)
LM(+)
LM(+)
FP-220
M903 LOADING MOTOR
A M'T
CN101 11P 0.5 NON.ZIF
1CH A(Y)
1CH A(Y)
1CH A(G)
2CH A(Y)
2CH A(Y)
2CH A(G)
CH (X)
CH (Y)
FE(G)
FE
1-CH (A)
2-CH (B)
VIDEO

09


11
12
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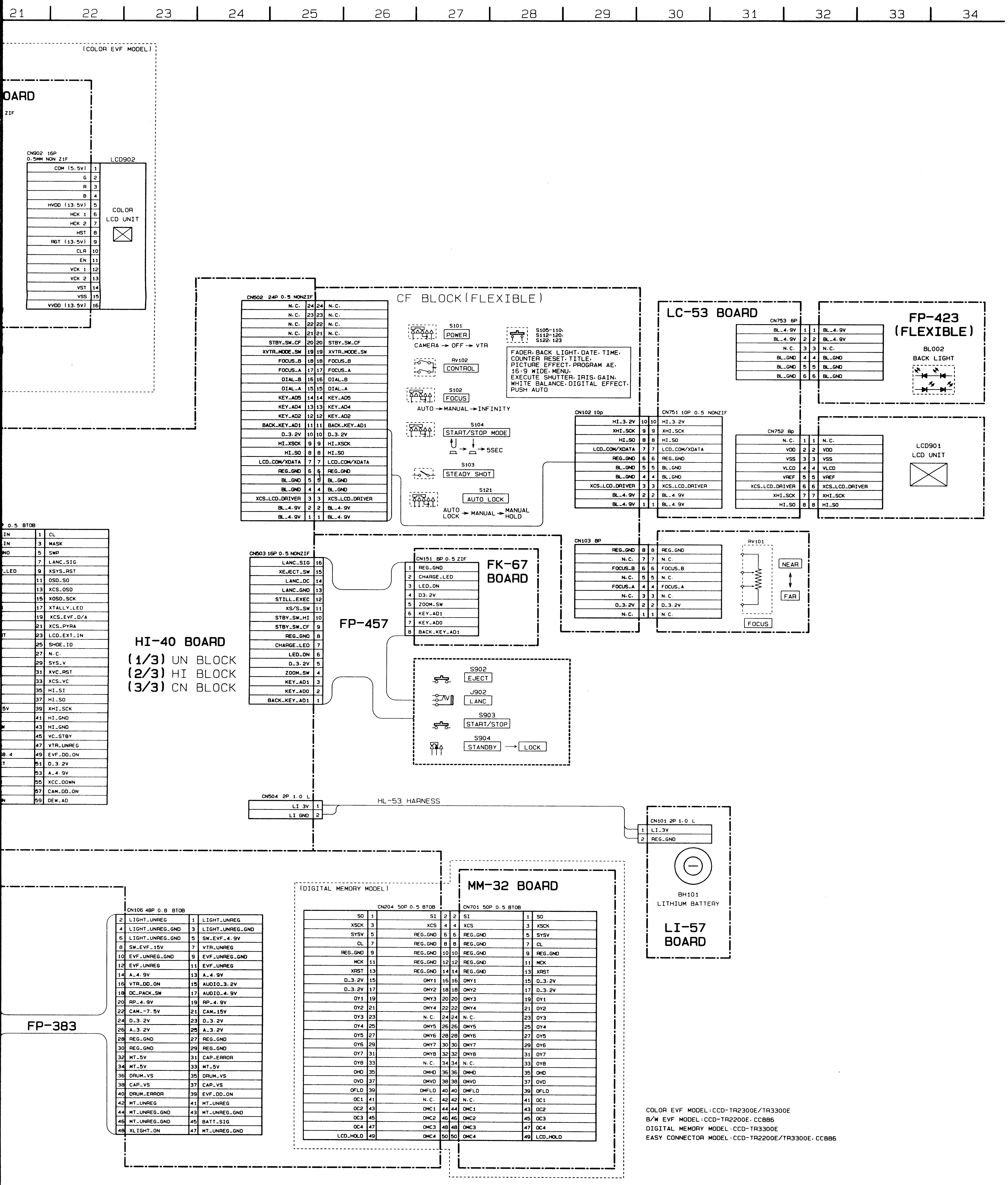
22
23
24
(COLOR EVF MODEL)
LB-45 BOARD
CN801 10P B TO B
BL802
BACK LIGHT
CN853 10P B TO B
VF-95 BOARD
CN852 26P 0.5MM NON ZIF
VF-96 BOARD
CN901 22P 0.5MM NON ZIF
CN902 16P 0.5MM NON ZIF
LCD902
COLOR LCD UNIT
FP-420
Q991 D991
(B/W EVF MODEL)
CN902 4P JST 5mm
VF-104 BOARD
V901 CRT ASSY
FBT
M901 5P CRT SOCKET
CN851 20P
FP-395
FP-386
CN111 20P
FP-419
CN110 60P 0.5 BTOB
CN501 60P 0.5 BTOB
CN502 24P 0.5
CN503 16P 0.5
CN504 2P
HI-40 BOARD
(1/3) UN BLOCK
(2/3) HI BLOCK
(3/3) CN BLOCK
RD
LOCK (8/14) PY BLOCK
LOCK (9/14) MC BLOCK
LOCK (10/14) SB BLOCK
LOCK (11/14) AU BLOCK
LOCK (12/14) I/O BLOCK
R BLOCK (13/14) EZ BLOCK
LOCK (14/14) CN BLOCK
CN101 11P 0.5 NON.ZIF
CN104 10P 0.5 NON.ZIF
CN103 12P 0.5 NON.ZIF
CN102 15P 0.5 NON.ZIF
FP-248
FP-221
FP-249
FP-355
FP-356
FE
1-CH (A)
2-CH (B)
VIDEO HEAD
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
B-MECHA
PS1501
PS1502
PS1503
PS1504
CN1503 48P 0.8 BTOB:L
CN1501 5P
DD-87 BOARD
FP-383
CN106 48P 0.8 BTOB
DE-51 HARNESS
J901 BATTERY TERMINAL
XCEPT EASY CONNECTOR MODEL)



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22
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29
30
31
32
33
34
(COLOR EVF MODEL)
OARD
ZIF
CN902 16P 0.5MM NON ZIF
LCD902
COM (5.5V) 1
G 2
R 3
B 4
HVDD (13.5V) 5
HCK 1 6
HCK 2 7
HST 8
RGT (13.5V) 9
CLR 10
EN 11
VCK 1 12
VCK 2 13
VST 14
VSS 15
VVDD (13.5V) 16
COLOR LCD UNIT
CF BLOCK (FLEXIBLE)
CN502 24P 0.5 NONZIF
N.C.
STBY_SW_CF
XVTR_MODE_SW
FOCUS_B
FOCUS_A
DIAL_B
DIAL_A
KEY_AD5
KEY_AD4
KEY_AD2
BACK_KEY_AD1
D_3.2V
HI_XSCK
HI_SO
LCD_COM/XDATA
REG_GND
BL_GND
XCS_LCD_DRIVER
BL_4.9V
S101
POWER
CAMERA → OFF → VTR
RV102
CONTROL
S102
FOCUS
AUTO → MANUAL → INFINITY
S104
START/STOP MODE
5SEC
S103
STEADY SHOT
S121
AUTO LOCK
AUTO LOCK → MANUAL → MANUAL HOLD
S105-110, S112-120, S122, 123
FADER, BACK LIGHT, DATE, TIME, COUNTER RESET, TITLE, PICTURE EFFECT, PROGRAM AE, 16:9 WIDE, MENU, EXECUTE SHUTTER, IRIS, GAIN, WHITE BALANCE, DIGITAL EFFECT, PUSH AUTO
LC-53 BOARD
CN753 6P
BL_4.9V
N.C.
BL_GND
FP-423 (FLEXIBLE)
BL002
BACK LIGHT
CN102 10p
CN751 10P 0.5 NONZIF
HI_3.2V
XHI_SCK
HI_SO
LCD_COM/XDATA
REG_GND
BL_GND
XCS_LCD_DRIVER
BL_4.9V
CN752 8p
N.C.
VDD
VSS
VLCD
VREF
XCS_LCD_DRIVER
XHI_SCK
HI_SO
LCD901
LCD UNIT
CN103 8P
REG_GND
N.C.
FOCUS_B
FOCUS_A
D_3.2V
RV101
NEAR
FAR
FOCUS
P 0.5 BTOB
CL
MASK
SWP
LANC_SIG
XSYS_RST
OSD_SO
XCS_OSD
XOSD_SCK
XTALLY_LED
XCS_EVF_D/A
XCS_PYRA
LCD_EXT_IN
SHOE_ID
N.C.
SYS_V
XVC_RST
XCS_VC
HI_SI
HI_SO
XHI_SCK
HI_GND
VC_STBY
VTR_UNREG
EVF_DD_ON
D_3.2V
A_4.9V
XCC_DOWN
CAM_DD_ON
DEW_AD
HI-40 BOARD
(1/3) UN BLOCK
(2/3) HI BLOCK
(3/3) CN BLOCK
CN503 16P 0.5 NONZIF
LANC_SIG
XEJECT_SW
LANC_DC
LANC_GND
STILL_EXEC
XS/S_SW
STBY_SW_HI
STBY_SW_CF
REG_GND
CHARGE_LED
LED_ON
D_3.2V
ZOOM_SW
KEY_AD1
KEY_AD0
BACK_KEY_AD1
FP-457
CN151 8P 0.5 ZIF
REG_GND
CHARGE_LED
LED_ON
D3.2V
ZOOM_SW
KEY_AD1
KEY_AD0
BACK_KEY_AD1
FK-67 BOARD
S902
EJECT
J902
LANC
S903
START/STOP
S904
STANDBY → LOCK
CN504 2P 1.0 L
LI 3V
LI GND
HL-53 HARNESS
CN101 2P 1.0 L
LI_3V
REG_GND
BH101
LITHIUM BATTERY
LI-57 BOARD
(DIGITAL MEMORY MODEL)
MM-32 BOARD
CN106 48P 0.8 BTOB
LIGHT_UNREG
LIGHT_UNREG_GND
SW_EVF_15V
SW_EVF_4.9V
VTR_UNREG
EVF_UNREG_GND
EVF_UNREG
A_4.9V
VTR_DD_ON
DC_PACK_SW
AUDIO_3.2V
AUDIO_4.9V
RP_4.9V
CAM_-7.5V
CAM_15V
D_3.2V
A_3.2V
REG_GND
MT_5V
CAP_ERROR
DRUM_VS
CAP_VS
DRUM_ERROR
EVF_DD_ON
MT_UNREG
MT_UNREG_GND
BATT_SIG
XLIGHT_ON
FP-383
CN204 50P 0.5 BTOB
CN701 50P 0.5 BTOB
SO
SI
XSCK
XCS
SYSV
CL
REG_GND
MCK
XRST
D_3.2V
OY1
OY2
OY3
OY4
OY5
OY6
OY7
OY8
OMY1
OMY2
OMY3
OMY4
OMY5
OMY6
OMY7
OMY8
N.C.
OHD
OVD
OMHD
OMVD
OFLD
OMFLD
OC1
OC2
OC3
OC4
OMC1
OMC2
OMC3
OMC4
LCD_HOLD

COLOR EVF MODEL:CCD-TR2300E/TR3300E
B/W EVF MODEL:CCD-TR2200E, CC886
DIGITAL MEMORY MODEL:CCD-TR3300E
EASY CONNECTOR MODEL:CCD-TR2200E/TR3300E, CC886

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ▨ : Pattern from the side which enables seeing.
  (The other layers'patterns are not indicated.)
- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- Through hole is omitted.

* Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- -⊡- : nonflammable resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repeair.
- —— : B+ Line.
- - - - : B– Line.
- ⇨ : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

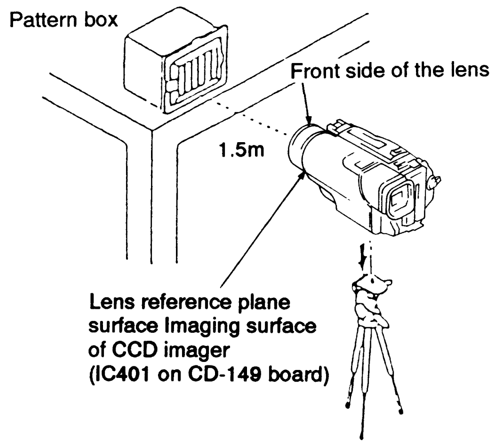
When indicating parts by reference number, please include the board name.

Refer to page 2 as models and classification of table for difference of functions.

• Measuring conditions voltage value and waveform. (CAMERA block)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points.
  Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection


Pattern box
Front side of the lens
1.5m
Lens reference plane
surface Imaging surface
of CCD imager
(IC401 on CD-149 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

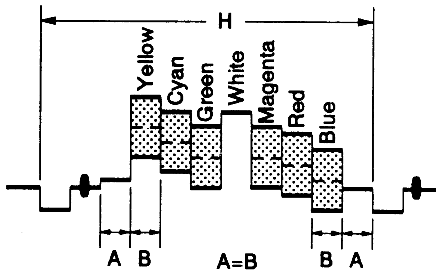

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A

Fig. a (Video output terminal output waveform)

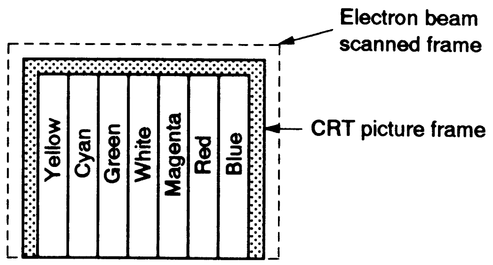

Electron beam scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. b (Picture on monitor TV)

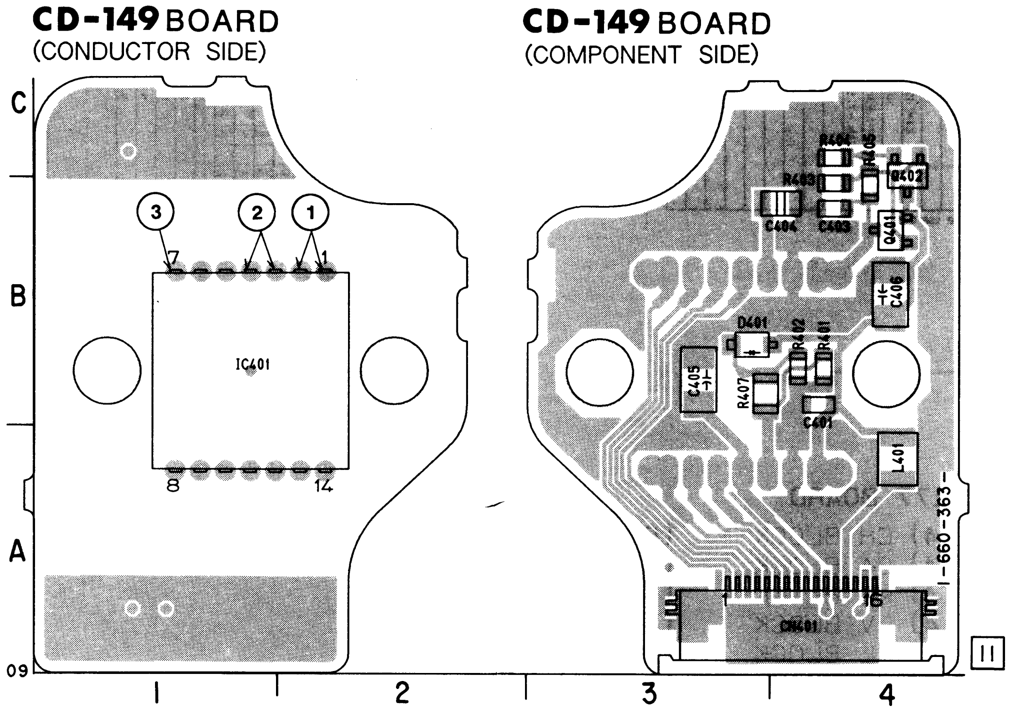
(VIDEO, SERVO/SYSTEM CONTROL, MODE CONTROL, AUDIO, EVF mode)

- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note: Refer to "3-1-4. Connecting the Equipments" and "3-1-6. How to Set the REC Mode in the Model without REC switch" in VIDEO SECTION ADJUSTMENT. (See page 6–33)

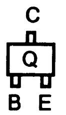
CD-149 (CCD IMAGER) PRINTED WIRING BOARD

— Ref No. CD-149 BOARD: 3,000 series —

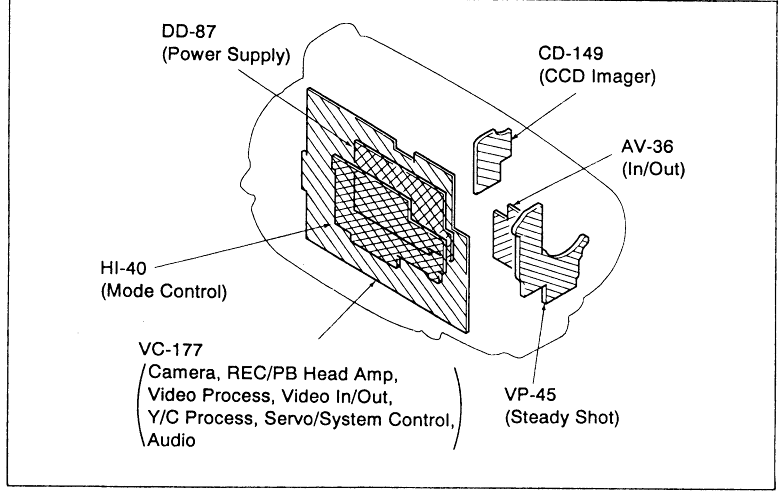

CD-149 BOARD
(CONDUCTOR SIDE)
CD-149 BOARD
(COMPONENT SIDE)
C
B
A
1
2
3
4
③
②
①
7
1
8
14
IC401
R404
R403
Q402
C404
C403
Q401
C406
D401
R402
R401
C405
R407
C401
L401
CN401
16
1-660-363-
09
11

CD-149	BOARD
C401	B-4
C405	B-3
C406	B-4
CN401	A-4
L401	A-4
Q401	B-4
Q402	C-4
R403	C-4
R404	C-4
R407	B-3

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

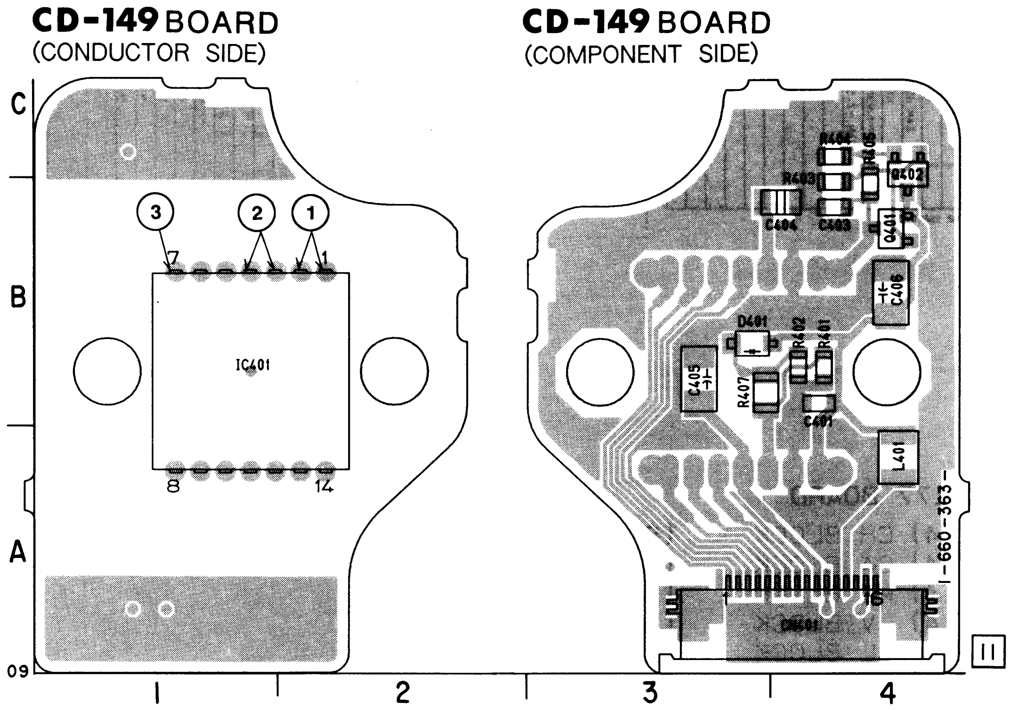


There are few cases that the part isn't mounted in this model is printed on this diagram.


DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
VP-45
(Steady Shot)

CD-149 (CCD IMAGER) PRINTED WIRING BOARD

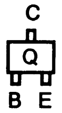
— Ref No. CD-149 BOARD: 3,000 series —


CD-149 BOARD
(CONDUCTOR SIDE)
CD-149 BOARD
(COMPONENT SIDE)
C
B
A
③
②
①
7
8
14
IC401
09
1
2
3
4
C401
C405
C406
C403
R403
R404
R407
D401
Q401
Q402
L401
CN401
16
1-660-363-
11

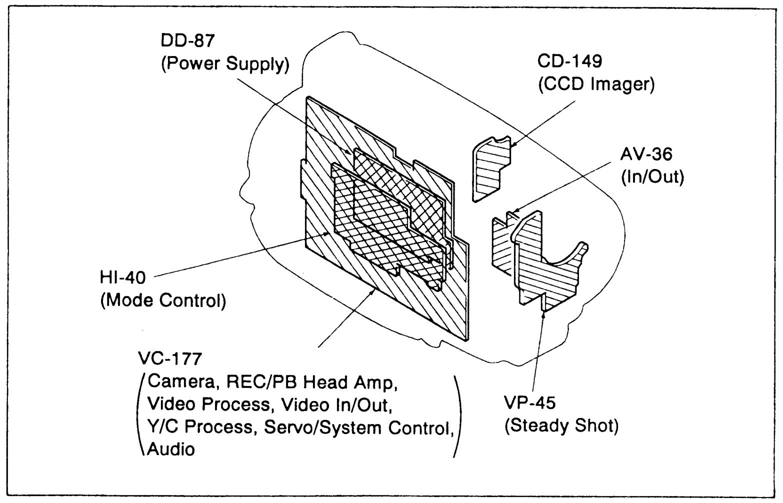
CD-149 BOARD

C401	B-4
C405	B-3
C406	B-4
CN401	A-4
L401	A-4
Q401	B-4
Q402	C-4
R403	C-4
R404	C-4
R407	B-3

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

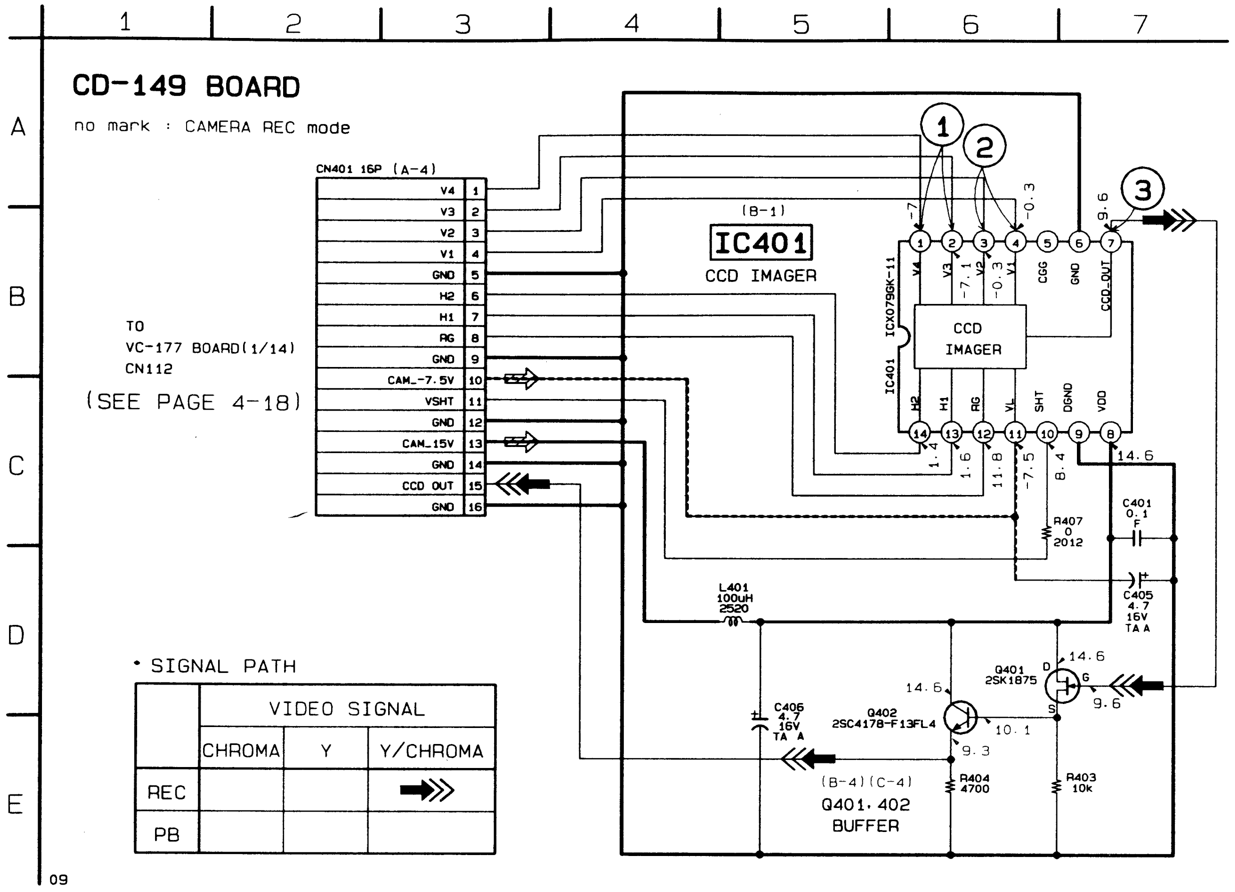


There are few cases that the part isn't mounted in this model is printed on this diagram.


DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
VP-45
(Steady Shot)

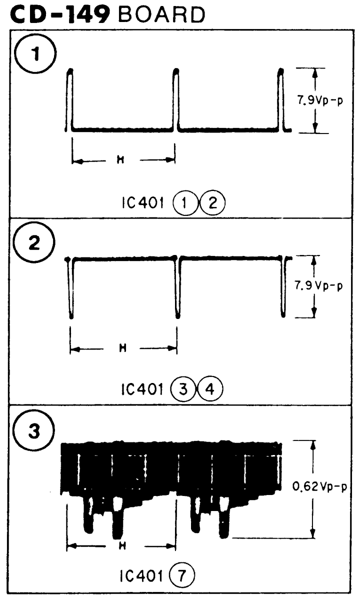
CD-149 (CCD IMAGER) SCHEMATIC DIAGRAM

— Ref No. CD-149 BOARD: 3,000 series —


1
2
3
4
5
6
7
A
B
C
D
E
09
CD-149 BOARD
no mark : CAMERA REC mode
CN401 16P (A-4)
V4 1
V3 2
V2 3
V1 4
GND 5
H2 6
H1 7
RG 8
GND 9
CAM_-7.5V 10
VSHT 11
GND 12
CAM_15V 13
GND 14
CCD OUT 15
GND 16
TO
VC-177 BOARD(1/14)
CN112
(SEE PAGE 4-18)
(B-1)
IC401
CCD IMAGER
ICX079GK-11
IC401
CCD
IMAGER
V4
V3
V2
V1
CGG
GND
CCD_OUT
H2
H1
RG
VL
SHT
DGND
VDD
①
②
③
-7
-7.1
-0.3
-0.3
9.6
1.4
1.6
11.8
-7.5
8.4
14.6
R407
0
2012
C401
0.1
F
C405
4.7
16V
TA A
L401
100uH
2520
C406
4.7
16V
TA A
Q401
2SK1875
D
G
S
14.6
9.6
Q402
2SC4178-F13FL4
14.6
10.1
9.3
R404
4700
R403
10k
(B-4)(C-4)
Q401, 402
BUFFER
• SIGNAL PATH

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡»
PB			



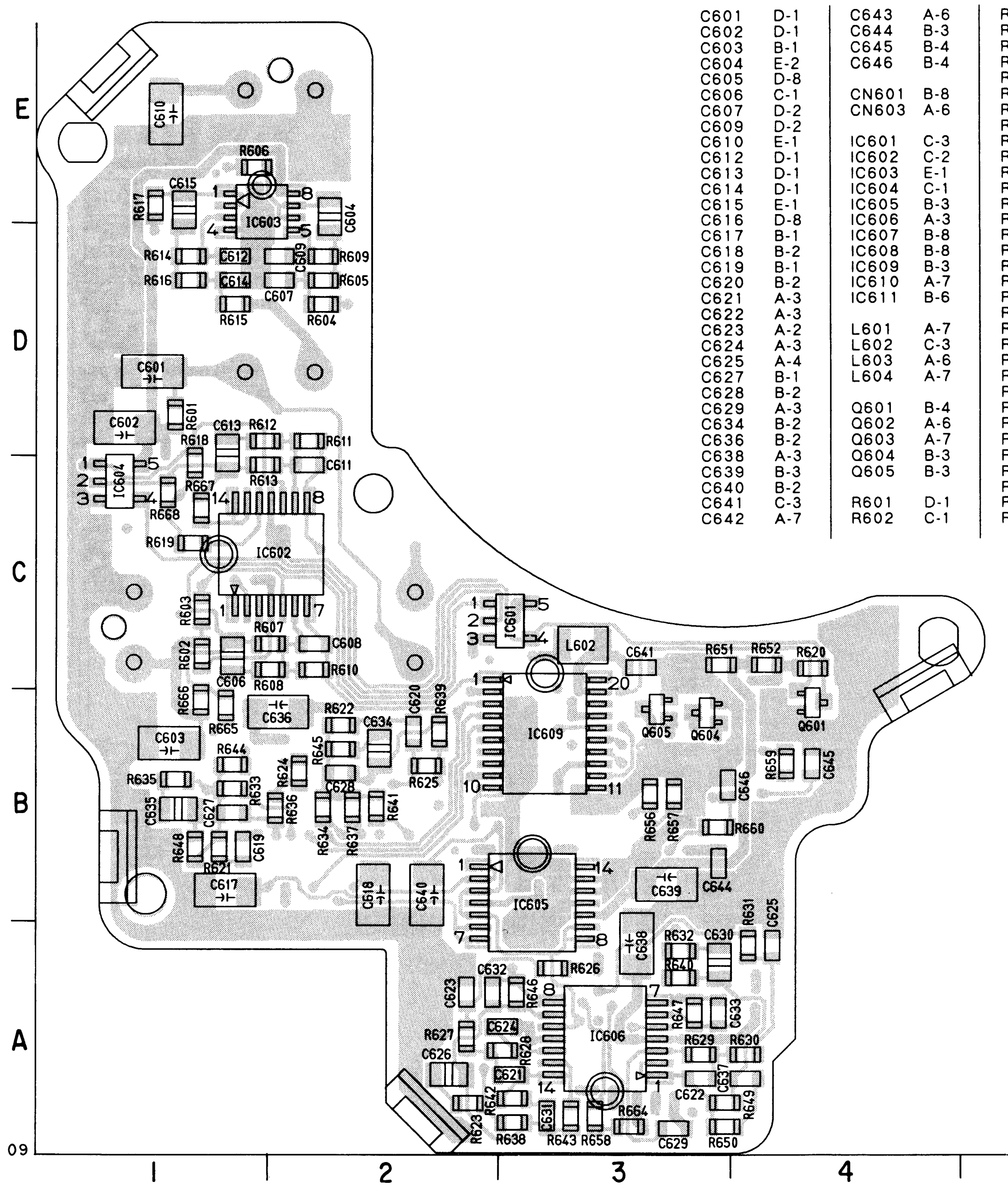
Note on the CCD Imager replacement

- The CCD imager is not mounted for the already mounted CD-149 board supplied as the repair parts.
  When replacing the CD-149 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

VP-45 (STEADY SHOT) PRINTED WIRING BOARD

— Ref No. VP-45 BOARD: 9,000 series —

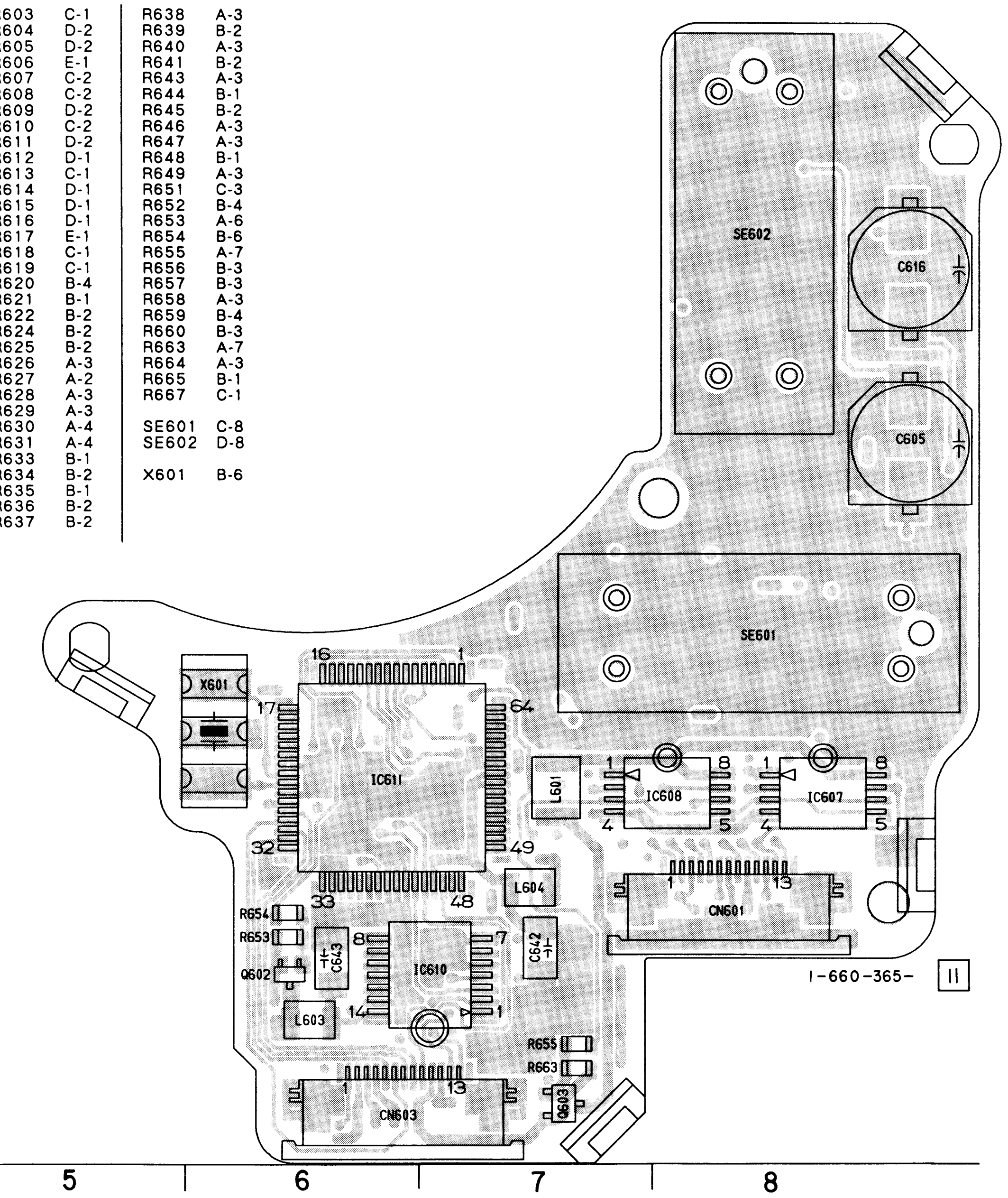
VP-45 BOARD (CONDUCTOR SIDE)


E
D
C
B
A
1
2
3
4
IC601
IC602
IC603
IC604
IC605
IC606
IC609
L602
Q601
Q604
Q605
09

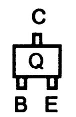
VP-45 BOARD

C601	D-1
C602	D-1
C603	B-1
C604	E-2
C605	D-8
C606	C-1
C607	D-2
C609	D-2
C610	E-1
C612	D-1
C613	D-1
C614	D-1
C615	E-1
C616	D-8
C617	B-1
C618	B-2
C619	B-1
C620	B-2
C621	A-3
C622	A-3
C623	A-2
C624	A-3
C625	A-4
C627	B-1
C628	B-2
C629	A-3
C634	B-2
C636	B-2
C638	A-3
C639	B-3
C640	B-2
C641	C-3
C642	A-7
C643	A-6
C644	B-3
C645	B-4
C646	B-4
CN601	B-8
CN603	A-6
IC601	C-3
IC602	C-2
IC603	E-1
IC604	C-1
IC605	B-3
IC606	A-3
IC607	B-8
IC608	B-8
IC609	B-3
IC610	A-7
IC611	B-6
L601	A-7
L602	C-3
L603	A-6
L604	A-7
Q601	B-4
Q602	A-6
Q603	A-7
Q604	B-3
Q605	B-3
R601	D-1
R602	C-1
R603	C-1
R604	D-2
R605	D-2
R606	E-1
R607	C-2
R608	C-2
R609	D-2
R610	C-2
R611	D-2
R612	D-1
R613	C-1
R614	D-1
R615	D-1
R616	D-1
R617	E-1
R618	C-1
R619	C-1
R620	B-4
R621	B-1
R622	B-2
R624	B-2
R625	B-2
R626	A-3
R627	A-2
R628	A-3
R629	A-3
R630	A-4
R631	A-4
R633	B-1
R634	B-2
R635	B-1
R636	B-2
R637	B-2
R638	A-3
R639	B-2
R640	A-3
R641	B-2
R643	A-3
R644	B-1
R645	B-2
R646	A-3
R647	A-3
R648	B-1
R649	A-3
R651	C-3
R652	B-4
R653	A-6
R654	B-6
R655	A-7
R656	B-3
R657	B-3
R658	A-3
R659	B-4
R660	B-3
R663	A-7
R664	A-3
R665	B-1
R667	C-1
SE601	C-8
SE602	D-8
X601	B-6

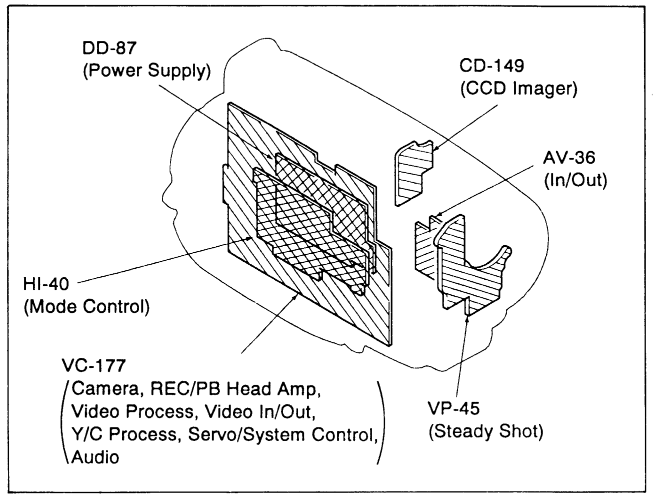
VP-45 BOARD (COMPONENT SIDE)


SE602
C616
C605
SE601
X601
IC611
IC608
IC607
IC610
CN601
CN603
L601
L603
L604
1-660-365-
11
5
6
7
8

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

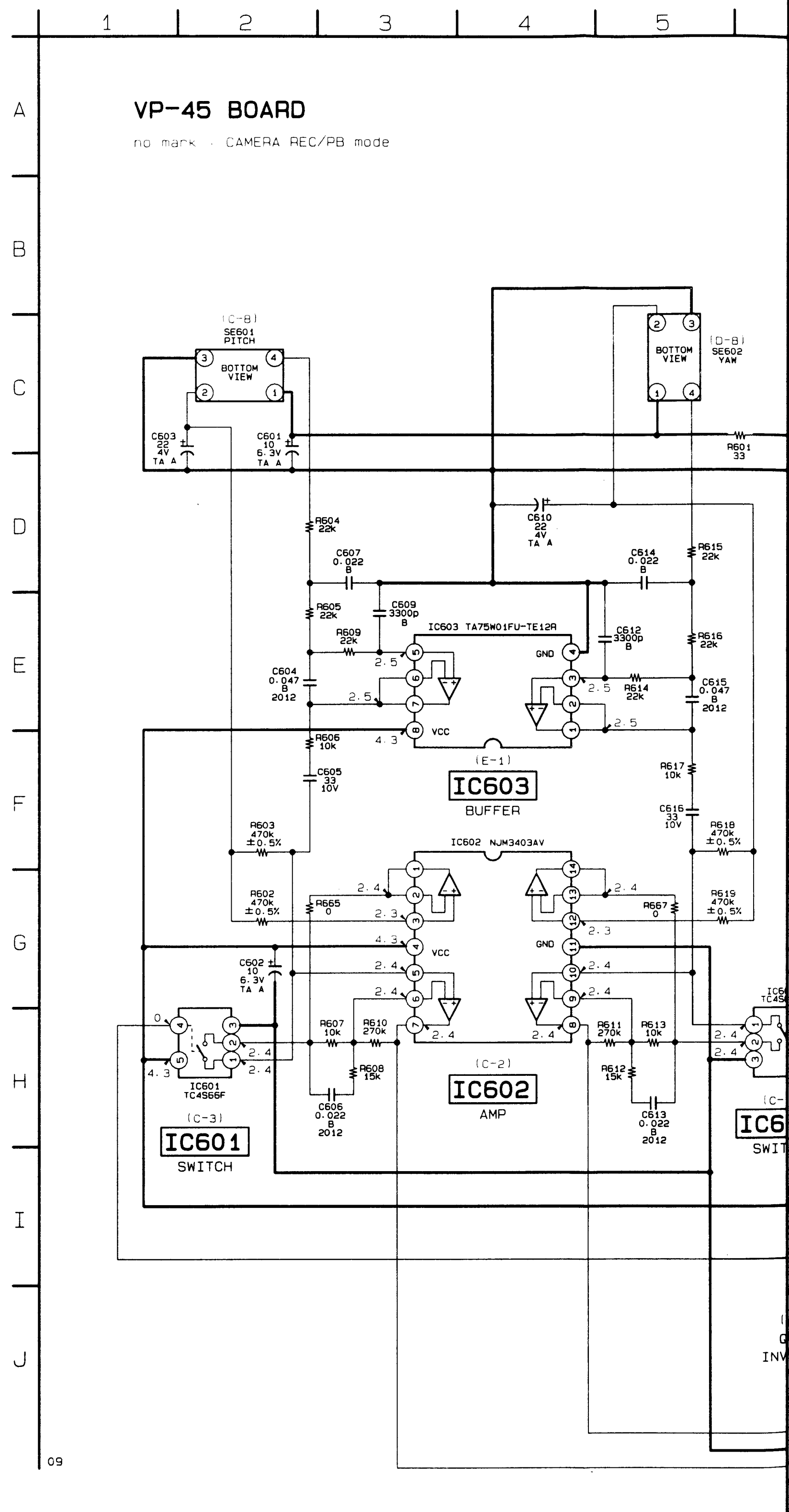


There are few cases that the part isn't mounted in this model is printed on this diagram.

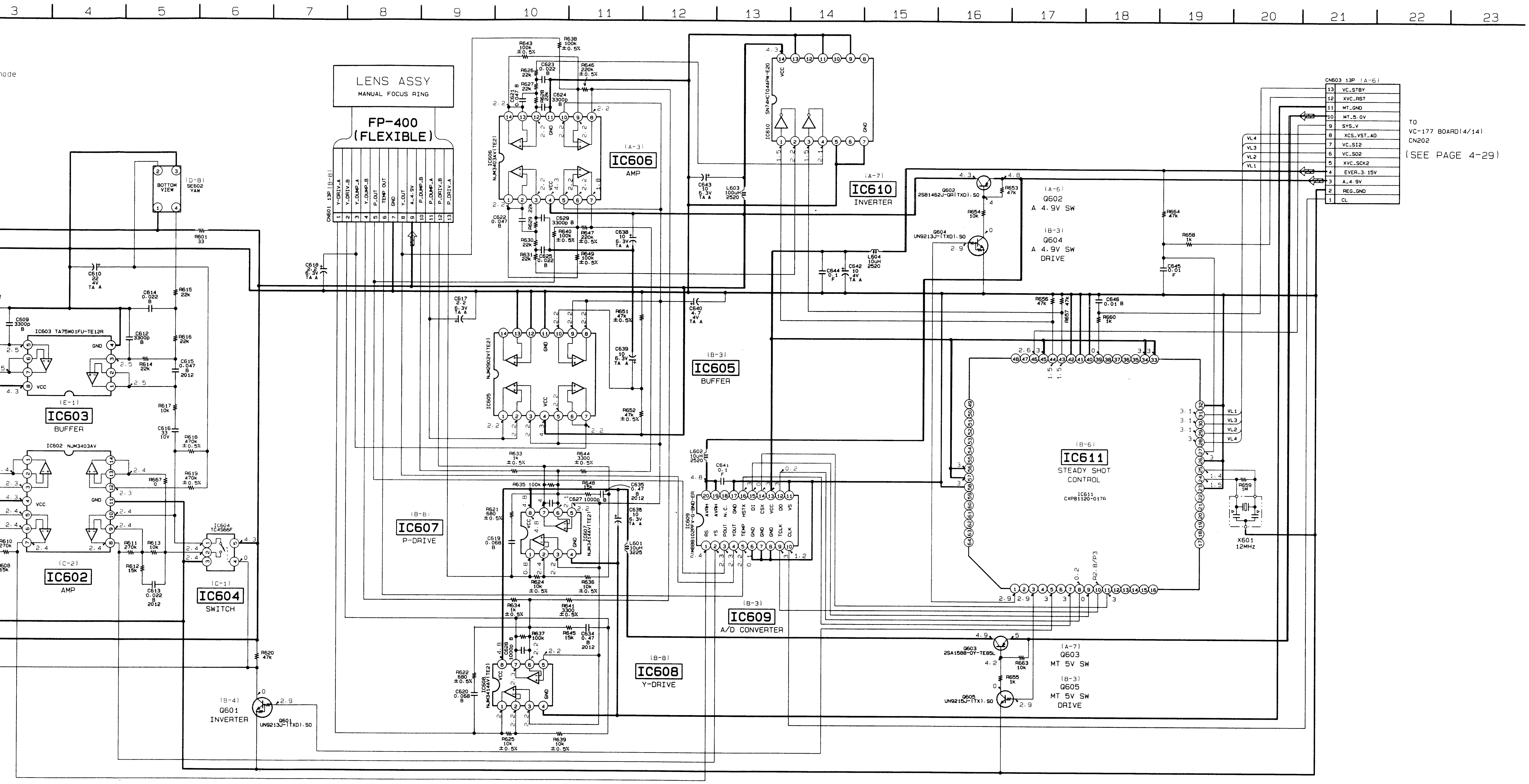

DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
(Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio)
VP-45
(Steady Shot)

VP-45 (STEADY SHOT) SCHEMATIC DIAGRAM

— Ref No. VP-45 BOARD: 9,000 series —


VP-45 BOARD
no mark : CAMERA REC/PB mode
SE601 PITCH
SE602 YAW
BOTTOM VIEW
IC603 TA75W01FU-TE12R
IC603
BUFFER
IC602 NJM3403AV
IC602
AMP
IC601 TC4S66F
IC601
SWITCH
VCC
GND
1
2
3
4
5
A
B
C
D
E
F
G
H
I
J
09

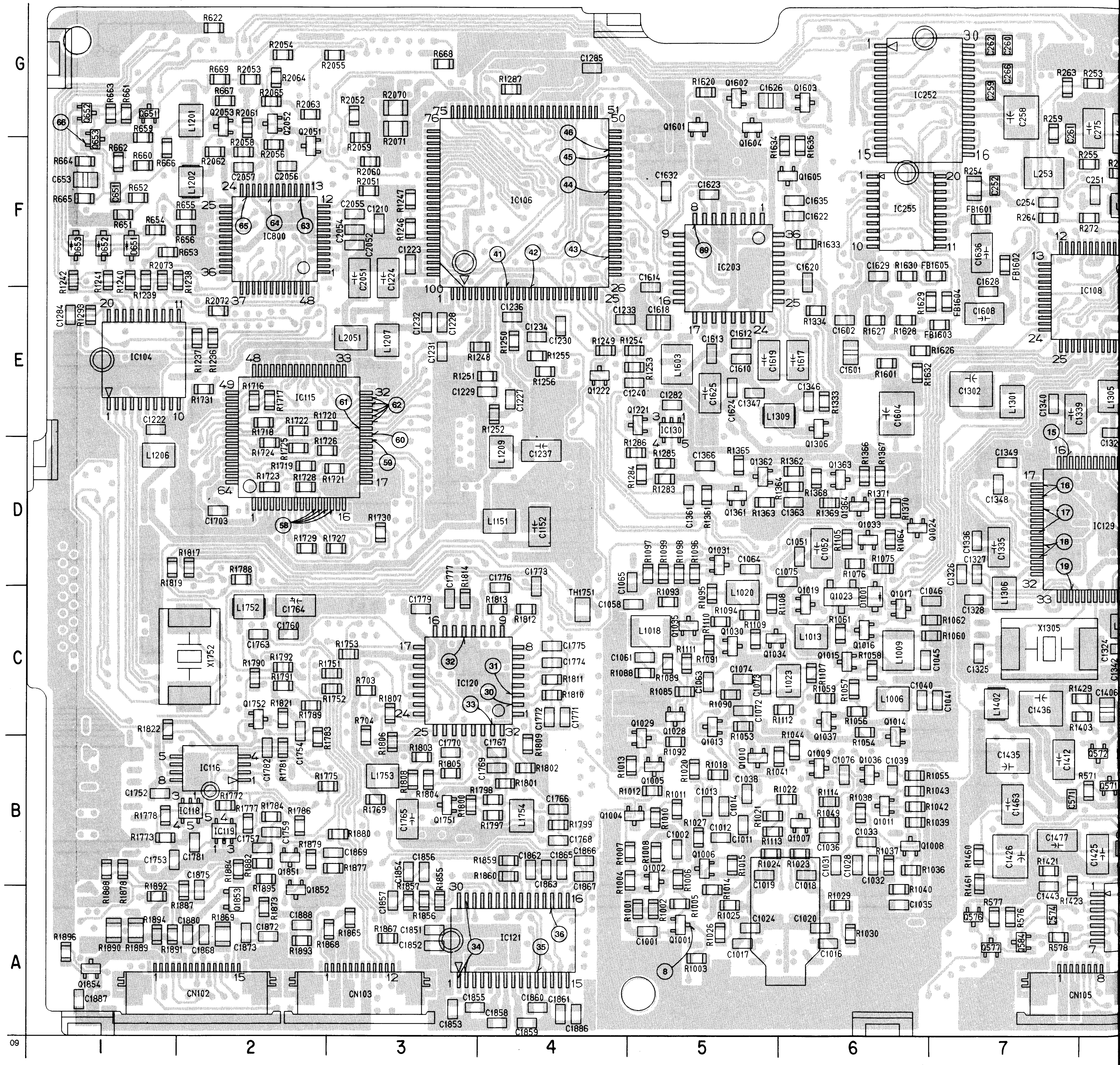
MATIC DIAGRAM

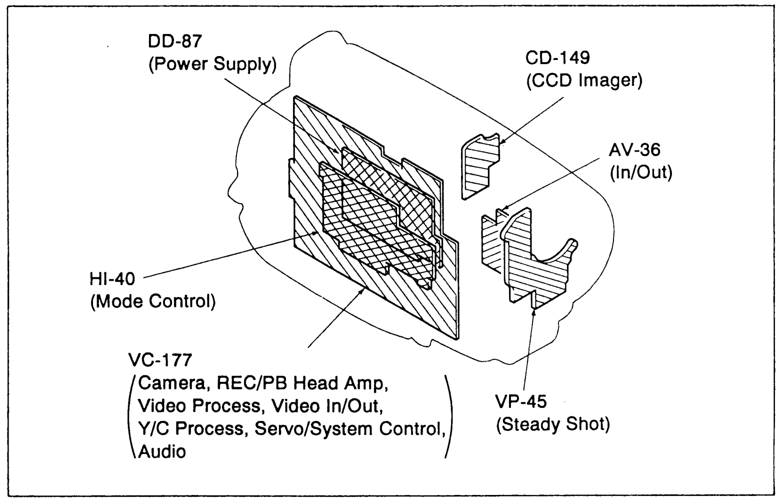

3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
LENS ASSY
MANUAL FOCUS RING
FP-400
(FLEXIBLE)
CN601 13P (B-8)
Y-DRIV_A
Y-DRIV_B
Y-DUMP_A
Y-DUMP_B
P_OUT
TEMP OUT
GND
Y_OUT
A_4.9V
P_DUMP_B
P_DUMP_A
P_DRIV_B
P_DRIV_A
BOTTOM VIEW
(D-8) SE602 YAW
IC603 TA75W01FU-TE12R
(E-1)
IC603
BUFFER
IC602 NJM3403AV
(C-2)
IC602
AMP
IC604 TC4S66F
(C-1)
IC604
SWITCH
(B-4)
Q601
INVERTER
Q601 UN9213J-(TXD).SO
IC606 NJM3403AV(TE2)
(A-3)
IC606
AMP
IC605 NJM2902V(TE2)
(B-3)
IC605
BUFFER
(B-8)
IC607
P-DRIVE
IC607 NJM3414AV(TE2)
IC608 NJM3414AV(TE2)
(B-8)
IC608
Y-DRIVE
IC610 SN74HC04APW-E20
(A-7)
IC610
INVERTER
IC609 MB8102PFV-G-BND-ER
(B-3)
IC609
A/D CONVERTER
(B-6)
IC611
STEADY SHOT
CONTROL
IC611 CXP81120-017R
X601 12MHz
Q602 2SB1462J-QR(TXD).SO
(A-6)
Q602
A 4.9V SW
Q604 UN9213J-(TXD).SO
(B-3)
Q604
A 4.9V SW
DRIVE
Q603 2SA1588-OY-TE85L
(A-7)
Q603
MT 5V SW
Q605 UN9215J-(TX).SO
(B-3)
Q605
MT 5V SW
DRIVE
CN603 13P (A-6)
13 VC_STBY
12 XVC_RST
11 MT_GND
10 MT_5.0V
9 SYS_V
8 XCS_VST_AD
7 VC_SI2
6 VC_SO2
5 XVC_SCK2
4 EVER_3.15V
3 A_4.9V
2 REG_GND
1 CL
TO
VC-177 BOARD(4/14)
CN202
(SEE PAGE 4-29)
VL1
VL2
VL3
VL4

VC-177 (CAMERA, REC/PB HEAD AMP, VIDEO PROCESS, VIDEO IN/OUT, Y/C PROCESS, SERVO/SYSTEM CONTROL, AUDIO) PRINTED WIRING BOARD

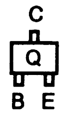
— Ref No. VC-177 BOARD: 10,000 series —

VC-177 BOARD (COMPONENT SIDE)


G
F
E
D
C
B
A
09
1
2
3
4
5
6
7
IC252
IC255
IC106
IC800
IC203
IC108
IC104
IC115
IC130
IC129
IC120
IC116
IC118
IC119
IC121
X1752
X1305
CN102
CN103
CN105

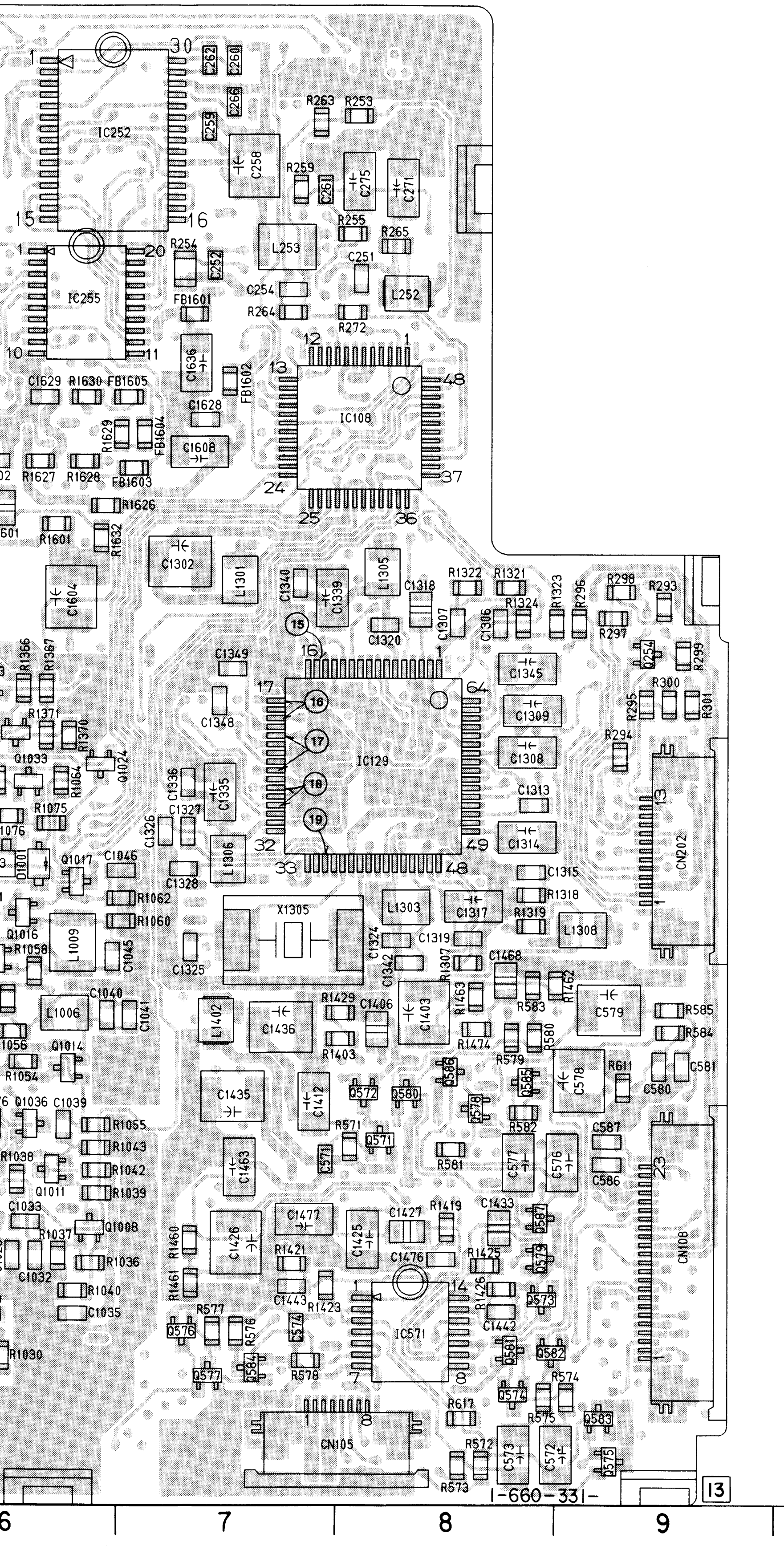

DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
(Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
VP-45
(Steady Shot)

- **For printed wiring boards.**
- This board is a six-layer print board. However, the patterns of layers 2, 3, 4 and 5 have not been included in the diagram.
- Chip transistor

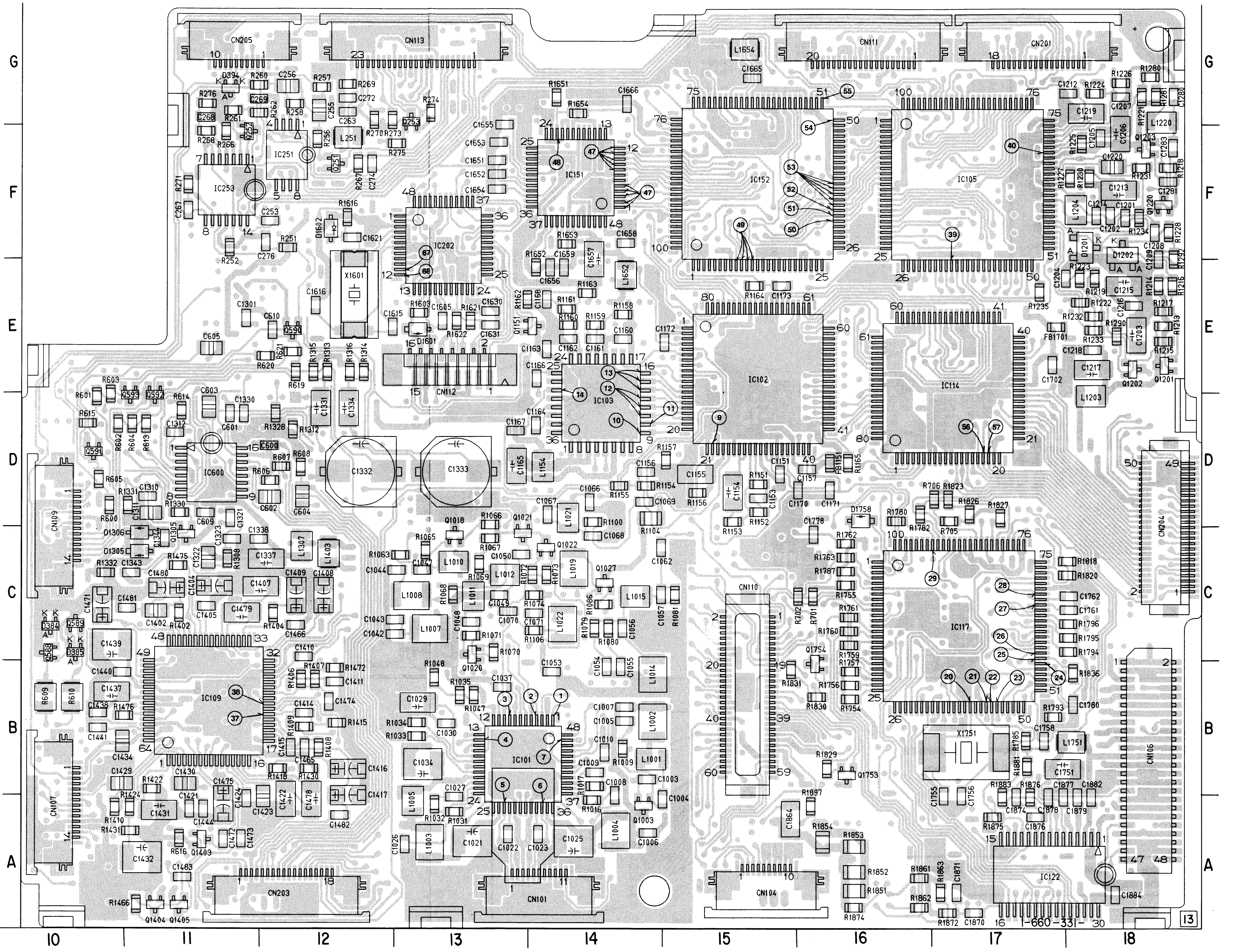


There are few cases that the part isn't mounted in this model is printed on this diagram.

TROL, AUDIO) PRINTED WIRING BOARD


IC252
IC255
IC108
IC129
IC571
X1305
CN202
CN108
CN105
1-660-331-
13
6
7
8
9

VC-177 BOARD (CONDUCTOR SIDE)


G
F
E
D
C
B
A
CN205
CN113
CN111
CN201
IC253
IC251
IC202
IC151
IC152
IC105
X1601
CN112
IC103
IC102
IC114
IC600
C1332
C1333
CN109
CN107
IC109
IC101
CN110
IC117
CN204
CN106
X1751
IC122
CN203
CN101
CN104
1-660-331-
13
10
11
12
13
14
15
16
17
18

VC-177 BOARD

C251	F-8
C252	F-7
C253	F-12
C254	F-7
C255	G-12
C256	G-12
C258	G-7
C259	G-7
C260	G-7
C261	G-7
C262	G-7
C263	G-12
C266	G-7
C267	F-11
C268	G-11
C269	G-12
C271	G-8
C276	F-12
C572	A-8
C573	A-8
C574	A-7
C576	B-8
C577	B-8
C578	B-9
C579	C-9
C580	B-9
C581	B-9
C586	B-9
C587	B-9
C600	D-12
C601	D-11
C602	D-12
C603	D-11
C604	D-12
C605	E-11
C609	D-11
C610	E-12
C1002	B-5
C1003	B-14
C1004	A-15
C1005	B-14
C1006	A-14
C1007	B-14
C1008	A-14
C1009	B-14
C1010	B-14
C1011	B-5
C1012	B-5
C1013	B-5
C1014	B-5
C1018	B-6
C1019	B-5
C1020	A-6
C1021	A-13
C1022	A-13
C1023	A-14
C1024	A-5
C1025	A-14
C1026	A-13
C1027	A-13
C1029	B-13
C1030	B-13
C1034	B-13
C1035	A-6
C1036	B-6
C1038	B-5
C1039	B-6
C1040	C-6
C1042	C-13
C1044	C-13
C1045	C-6
C1046	C-7
C1047	C-13
C1048	C-13
C1049	C-13
C1050	C-13
C1051	D-6
C1052	D-6
C1053	B-14
C1054	B-14
C1055	B-14
C1056	C-14
C1057	C-14
C1058	C-5
C1061	C-5
C1062	C-15
C1063	C-5
C1064	D-5
C1066	D-14
C1067	D-14
C1068	C-14
C1069	D-14
C1070	C-13
C1071	C-14
C1072	C-5
C1075	D-6
C1076	B-6
C1151	D-15
C1152	D-4
C1153	D-15
C1154	D-15
C1156	D-14
C1157	D-16
C1160	E-14
C1161	E-14
C1162	E-14
C1163	E-14
C1164	D-14
C1165	D-13
C1166	E-14
C1167	D-13
C1168	E-14
C1201	F-18
C1203	E-18
C1204	E-17
C1205	F-18
C1206	F-18
C1207	G-18
C1208	F-18
C1209	E-18
C1210	F-3
C1212	G-18
C1213	F-18
C1215	E-18
C1216	E-18
C1217	E-18
C1218	E-18
C1219	G-18
C1220	F-18
C1222	E-1
C1223	F-3
C1224	F-3
C1227	E-4
C1228	E-3
C1229	E-4
C1230	E-4
C1231	E-3
C1232	E-3
C1233	E-4
C1234	E-4
C1236	E-4
C1237	D-4
C1240	E-5
C1280	G-18
C1282	E-5
C1283	F-18
C1284	E-1
C1285	G-4
C1301	E-11
C1302	E-7
C1306	E-8
C1307	E-8
C1308	D-8
C1309	D-8
C1310	D-11
C1311	D-11
C1312	D-11
C1313	D-8
C1314	D-8
C1315	C-8
C1317	C-8
C1318	E-8
C1319	C-8
C1320	E-8
C1321	D-11
C1322	C-11
C1323	C-11
C1324	C-8
C1326	D-7
C1327	D-7
C1328	C-7
C1330	D-11
C1331	D-12
C1332	D-12
C1333	D-13
C1334	D-12
C1335	D-7
C1336	D-7
C1337	C-12
C1338	C-11
C1339	E-7
C1340	E-7
C1342	C-8
C1343	C-11
C1345	D-8
C1346	E-6
C1347	E-5
C1402	C-11
C1403	C-8
C1404	C-11
C1405	C-11
C1406	C-8
C1407	C-12
C1408	C-12
C1409	C-12
C1410	C-12
C1411	B-12
C1412	B-7
C1414	B-12
C1415	B-12
C1416	B-12
C1417	A-12
C1421	A-11
C1422	A-12
C1423	A-12
C1424	A-11
C1425	B-8
C1426	B-7
C1427	B-8
C1429	B-10
C1430	B-11
C1431	A-11
C1432	A-11
C1433	B-8
C1434	B-10
C1435	B-7
C1436	C-7
C1437	B-10
C1439	C-10
C1441	B-10
C1444	A-11
C1471	C-10
C1474	B-12
C1475	A-11
C1601	E-6
C1602	E-6
C1604	E-6
C1605	E-13
C1608	E-7
C1612	E-5
C1613	E-5
C1615	E-12
C1616	E-12
C1617	E-6
C1618	E-5
C1619	E-5
C1620	F-6
C1621	F-12
C1622	F-6
C1623	F-5
C1624	E-5
C1625	E-5
C1626	G-5
C1628	E-7
C1629	F-6
C1630	E-13
C1631	E-13
C1632	F-5
C1635	F-6
C1654	F-13
C1655	F-13
C1656	E-14
C1657	E-14
C1658	F-14
C1659	E-14
C1665	G-15
C1702	E-17
C1703	D-2
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C1752	B-1
C1753	B-1
C1754	C-2
C1755	A-17
C1756	A-17
C1757	B-2
C1758	B-17
C1760	C-2
C1761	C-18
C1762	C-18
C1763	C-2
C1764	C-2
C1765	B-3
C1767	B-4
C1768	B-4
C1769	B-4
C1770	B-3
C1771	C-4
C1772	C-4
C1773	C-4
C1774	C-4
C1775	C-4
C1776	C-4
C1777	C-3
C1779	C-3
C1780	B-18
C1781	B-2
C1782	B-2
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C1852	A-3
C1853	A-3
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C1856	B-3
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C1858	A-4
C1859	A-4
C1860	A-4
C1861	A-4
C1862	B-4
C1863	B-4
C1864	A-15
C1865	B-4
C1866	B-4
C1867	B-4
C1868	A-2
C1869	B-3
C1870	A-17
C1871	A-17
C1872	A-2
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C1874	A-17
C1875	A-2
C1876	A-17
C1877	A-17
C1878	A-17
C1879	A-18
C1880	A-2
C1882	A-18
C1884	A-18
C1886	A-4
C1887	A-1
C1888	A-2
C2051	F-3
C2052	F-3
C2054	F-3
C2055	F-3
C2056	F-2
C2057	F-2
CN101	A-14
CN102	A-2
CN103	A-3
CN104	A-15
CN105	A-7
CN106	B-18
CN107	A-10
CN108	B-9
CN109	D-10
CN110	C-15
CN111	G-16
CN112	E-13
CN113	G-13
CN202	C-9
CN203	A-12
CN204	C-18
CN205	G-11
D384	C-10
D385	C-10
D394	G-11
D651	F-1
D652	F-1
D653	F-1
D1201	F-18
D1202	F-18
D1601	E-13
D1602	F-12
D1758	D-16
FB1151	D-16
FB1601	F-7
FB1602	F-7
FB1603	E-7
FB1604	E-7
FB1605	F-7
FB1701	E-17
IC101	B-13
IC102	E-15
IC103	D-14
IC104	E-1
IC105	F-17
IC106	F-4
IC108	E-8
IC109	B-11
IC114	E-17
IC115	E-2
IC116	B-2
IC117	C-17
IC118	B-2
IC119	B-2
IC120	C-3
IC121	A-4
IC122	A-17
IC129	D-8
IC130	E-5
IC151	F-14
IC152	F-15
IC202	F-13
IC203	F-5
IC251	F-12
IC252	G-6
IC253	F-11
IC255	F-6
IC571	A-8
IC600	D-11
IC800	F-2
L251	F-12
L252	F-8
L253	F-7
L1001	B-14
L1002	B-14
L1003	A-13
L1004	A-14
L1005	A-13
L1006	C-6
L1007	C-13
L1008	C-13
L1009	C-6
L1010	C-13
L1011	C-13
L1012	C-13
L1013	C-6
L1014	B-14
L1015	C-14
L1018	C-5
L1019	C-14
L1021	D-14
L1022	C-14
L1151	D-4
L1154	D-14
L1201	G-2
L1202	F-2
L1203	D-18
L1204	F-18
L1206	D-1
L1207	E-3
L1209	D-4
L1220	G-18
L1301	E-7
L1303	C-8
L1305	E-8
L1306	C-7
L1307	C-12
L1308	C-9
L1309	E-5
L1402	C-7
L1403	C-12
L1603	E-5
L1652	E-14
L1654	G-15
L1751	B-18
L1752	C-2
L1753	B-3
L1754	B-4
L2051	E-3
Q251	F-12
Q252	F-11
Q253	G-13
Q254	D-9
Q572	B-8
Q573	A-8
Q574	A-8
Q575	A-9
Q576	A-7
Q577	A-7
Q578	B-8
Q579	B-8
Q580	B-8
Q581	A-8
Q582	A-8
Q583	A-9
Q584	A-7
Q585	B-8
Q586	B-8
Q587	B-8
Q588	C-10
Q589	C-10
Q590	E-12
Q591	D-10
Q592	D-11
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Q1005	B-5
Q1006	B-5
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Q1009	B-6
Q1010	B-5
Q1013	C-5
Q1014	C-6
Q1015	C-6
Q1016	C-6
Q1018	C-13
Q1019	C-6
Q1021	C-13
Q1022	C-14
Q1023	C-6
Q1024	D-6
Q1027	C-14
Q1030	C-5
Q1031	D-5
Q1033	D-6
Q1034	C-5
Q1035	C-5
Q1036	B-6
Q1037	C-6
Q1151	E-14
Q1201	E-18
Q1202	E-18
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Q1220	F-18
Q1221	E-5
Q1222	E-4
Q1305	C-11
Q1306	E-6
Q1601	G-5
Q1602	G-5
Q1603	G-6
Q1604	G-5
Q1751	B-3
Q1752	C-2
Q1851	B-2
Q1852	A-2
Q1853	A-2
Q1854	A-1
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Q2052	G-2
Q2053	G-2
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R256	F-12
R257	G-12
R258	G-12
R259	G-7
R260	G-12
R261	G-11
R262	G-12
R263	G-7
R264	F-7
R265	F-8
R266	F-11
R267	F-12
R268	F-11
R269	G-12
R270	G-12
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R580	C-8
R581	B-8
R582	B-8
R583	C-8
R584	C-9
R585	C-9
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R601	D-10
R602	D-10
R603	D-10
R604	D-11
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R611	B-9
R613	D-11
R614	D-11
R615	D-10
R616	A-11
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R619	E-12
R620	E-12
R621	E-12
R622	G-2
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R654	F-1
R655	F-2
R656	F-2
R668	G-3
R669	G-2
R702	C-16
R703	C-3
R705	D-17
R706	D-16
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R1002	A-5
R1003	A-5
R1004	B-5
R1005	A-5
R1006	B-5
R1007	B-5
R1008	B-5
R1009	B-14
R1010	B-5
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R1012	B-5
R1013	B-5
R1014	A-5
R1016	A-14
R1017	B-14
R1018	B-5
R1020	B-5
R1021	B-5
R1022	B-6
R1023	B-6
R1024	B-5
R1025	A-5
R1026	A-5
R1027	B-5
R1029	A-6
R1030	A-6
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R1032	A-13
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R1034	B-13
R1035	B-13
R1038	B-6
R1041	B-5
R1044	B-6
R1049	B-6
R1053	C-5
R1054	C-6
R1055	B-6
R1056	C-6
R1057	C-6
R1058	C-6
R1060	C-7
R1061	C-6
R1062	C-7
R1063	C-13
R1065	C-13
R1066	D-13
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R1068	C-13
R1069	C-13
R1070	C-13
R1072	C-14
R1073	C-14
R1074	C-14
R1075	D-6
R1076	D-6
R1079	C-14
R1080	C-14
R1081	C-15
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R1086	C-14
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R1091	C-5
R1093	C-5
R1094	C-5
R1095	C-5
R1096	D-5
R1097	D-5
R1098	D-5
R1099	D-5
R1100	D-14
R1104	D-14
R1105	D-6
R1106	C-14
R1108	C-5
R1109	C-5
R1110	C-5
R1111	C-5
R1112	C-6
R1113	B-5
R1114	B-6
R1151	D-15
R1152	D-15
R1153	D-15
R1154	D-14
R1155	D-14
R1156	D-15
R1157	D-15
R1159	E-14
R1160	E-14
R1162	E-14
R1163	E-14
R1165	D-16
R1213	E-18
R1215	E-18
R1216	E-18
R1217	E-18
R1218	F-18
R1219	E-18
R1221	G-18
R1222	E-18
R1223	E-18
R1224	G-18
R1225	F-18
R1226	G-18
R1227	F-18
R1228	F-18
R1230	F-18
R1231	F-18
R1232	E-18
R1233	E-18
R1234	F-18
R1235	E-17
R1236	E-2
R1237	E-2
R1238	F-1
R1239	F-1
R1240	F-1
R1241	F-1
R1242	F-1
R1246	F-3
R1247	F-3
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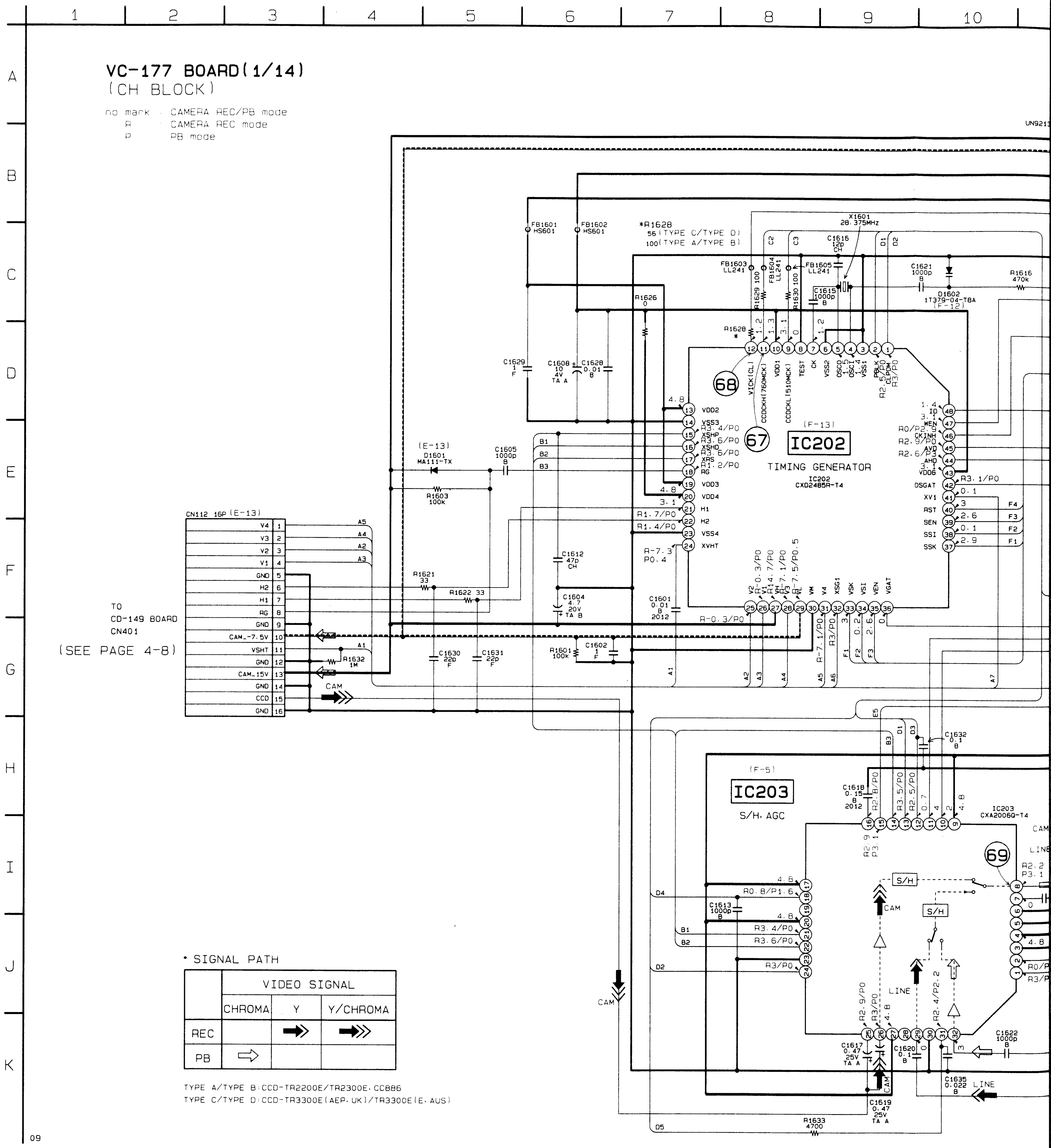
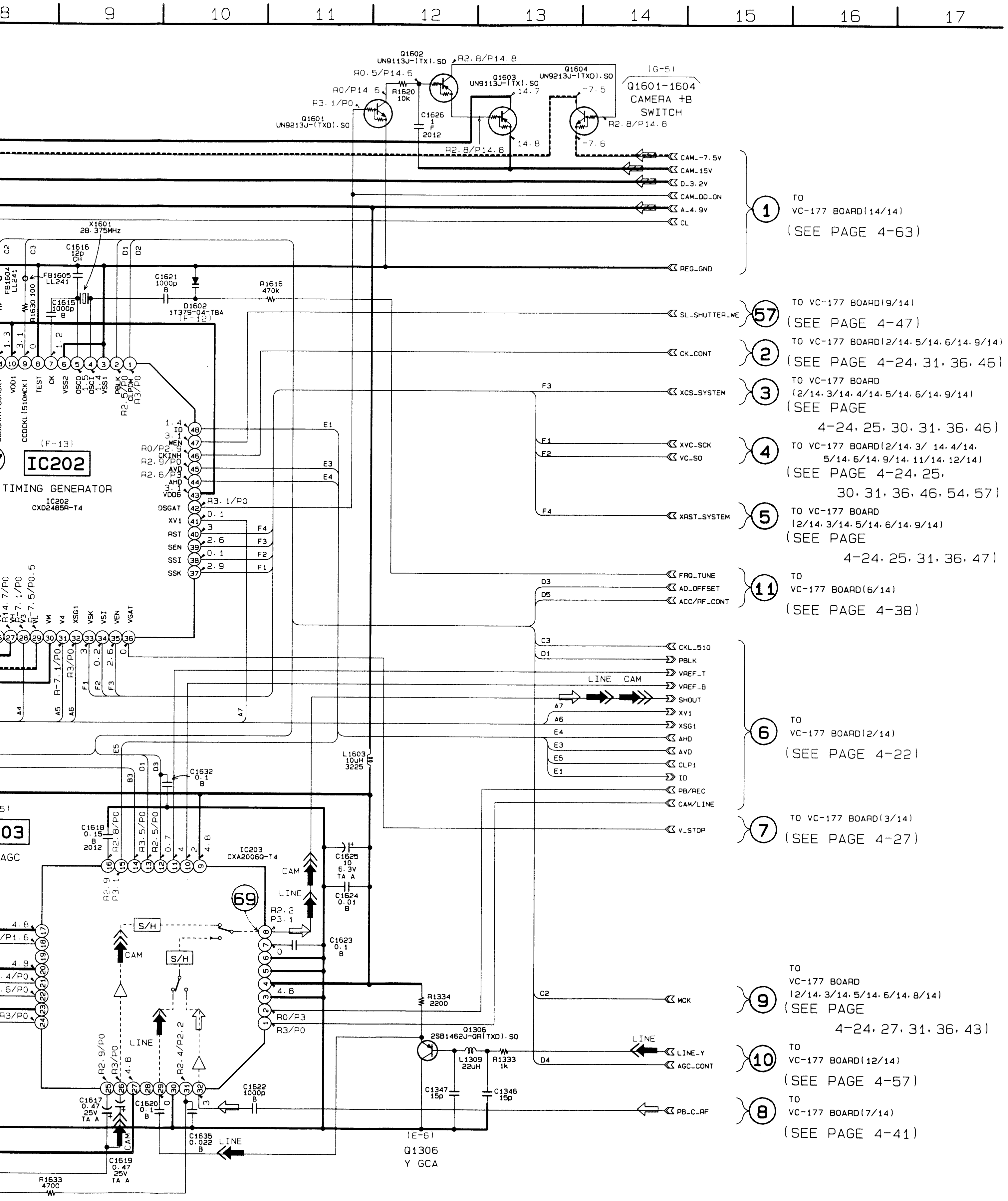
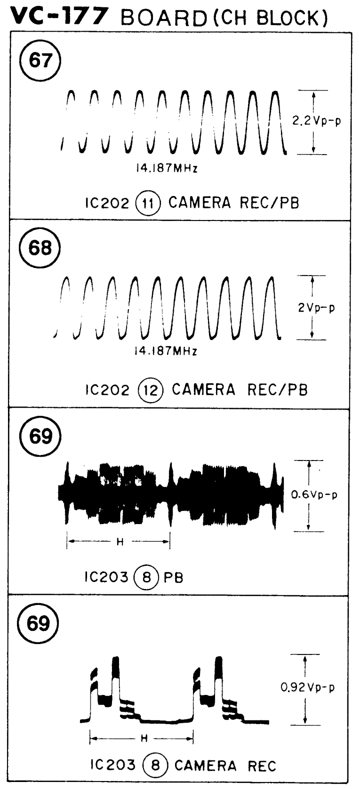
R1251	E-4
R1252	E-4
R1253	E-5
R1254	E-5
R1255	E-4
R1256	E-4
R1280	G-18
R1281	G-18
R1283	D-5
R1284	D-5
R1285	D-5
R1286	D-5
R1290	E-18
R1292	E-18
R1293	E-1
R1307	C-8
R1308	C-11
R1312	D-12
R1313	E-12
R1314	E-12
R1315	E-12
R1316	E-12
R1318	C-8
R1319	C-8
R1321	E-8
R1322	E-8
R1323	E-8
R1324	E-8
R1330	D-11
R1331	D-11
R1332	C-10
R1333	E-6
R1334	E-6
R1402	C-11
R1403	C-7
R1404	C-12
R1406	B-12
R1407	B-12
R1408	B-12
R1409	B-12
R1410	A-10
R1415	B-12
R1418	B-12
R1419	B-8
R1421	B-7
R1422	B-11
R1423	B-7
R1424	A-11
R1425	B-8
R1426	A-8
R1429	C-7
R1430	B-12
R1431	A-11
R1460	B-7
R1463	C-8
R1472	B-12
R1476	B-11
R1601	E-6
R1603	E-13
R1616	F-12
R1620	G-5
R1621	E-13
R1622	E-13
R1626	E-6
R1628	E-6
R1629	E-6
R1630	F-6
R1632	E-6
R1633	F-6
R1651	G-14
R1653	F-14
R1751	C-3
R1752	C-3
R1753	C-3
R1759	C-16
R1760	C-16
R1761	C-16
R1762	C-16
R1763	C-16
R1772	B-2
R1773	B-1
R1775	B-2
R1780	D-16
R1781	B-2
R1782	D-16
R1783	C-2
R1784	B-2
R1785	B-17
R1786	B-2
R1787	C-16
R1789	C-2
R1791	C-2
R1792	C-2
R1793	B-17
R1794	C-18
R1795	C-18
R1796	C-18
R1798	B-4
R1801	B-4
R1803	B-3
R1804	B-3
R1805	B-3
R1806	B-3
R1807	C-3
R1808	B-3
R1809	B-4
R1810	C-4
R1811	C-4
R1812	C-4
R1813	C-4
R1814	C-3
R1817	D-2
R1818	C-18
R1820	C-18
R1821	C-2
R1822	C-1
R1823	D-17
R1826	D-17
R1827	D-17
R1836	B-18
R1851	A-16
R1852	A-16
R1853	A-16
R1855	A-3
R1856	A-3
R1857	A-3
R1859	B-4
R1860	B-4
R1861	A-16
R1862	A-16
R1863	A-17
R1865	A-3
R1867	A-3
R1868	A-3
R1869	A-2
R1872	A-17
R1873	A-2
R1874	A-16
R1875	A-17
R1876	A-17
R1877	B-3
R1878	B-1
R1880	B-3
R1881	B-17
R1882	B-2
R1883	A-17
R1884	B-2
R1887	A-2
R1888	B-1
R1889	A-1
R1890	A-1
R1891	A-1
R1892	A-1
R1893	A-2
R1894	A-1
R1895	B-2
R1896	A-1
R1897	A-16
R2051	F-3
R2052	G-3
R2053	G-2
R2054	G-2
R2055	G-3
R2056	F-2
R2058	F-2
R2059	F-3
R2060	F-3
R2061	G-2
R2062	F-2
R2063	G-2
R2064	G-2
R2065	G-2
R2070	G-3
R2071	G-3
R2072	E-2
R2073	F-1
TH1751	C-4
X1305	C-7
X1601	E-12
X1751	B-17
X1752	C-2

VC-177 (CAMERA (1)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —




8
9
10
11
12
13
14
15
16
17
Q1601-1604
CAMERA +B
SWITCH
(G-5)
Q1601
UN9213J-(TXD).SO
Q1602
UN9113J-(TX).SO
Q1603
UN9113J-(TX).SO
Q1604
UN9213J-(TXD).SO
R1620
10k
C1626
1
F
2012
X1601
28.375MHz
C1616
12p
CH
FB1605
LL241
C1615
1000p
B
C1621
1000p
B
D1602
1T379-04-TBA
(F-12)
R1616
470k
IC202
TIMING GENERATOR
IC202
CXD2485R-T4
(F-13)
IC203
CXA2006Q-T4
AGC
L1603
10uH
3225
C1625
10
6.3V
TA A
C1624
0.01
B
C1623
0.1
B
C1632
0.1
B
C1618
0.15
B
2012
R1334
2200
Q1306
2SB1462J-QR(TXD).SO
L1309
22uH
R1333
1k
C1347
15p
C1346
15p
C1622
1000p
B
C1617
0.47
25V
TA A
C1620
0.1
B
C1635
0.022
B
C1619
0.47
25V
TA A
R1633
4700
(E-6)
Q1306
Y GCA
S/H
S/H
CAM
LINE
69
CAM_-7.5V
CAM_15V
D_3.2V
CAM_DD_ON
A_4.9V
CL
REG_GND
SL_SHUTTER_WE
CK_CONT
XCS_SYSTEM
XVC_SCK
VC_SO
XRST_SYSTEM
FRQ_TUNE
AD_OFFSET
ACC/RF_CONT
CKL_510
PBLK
VREF_T
VREF_B
SHOUT
XV1
XSG1
AHD
AVD
CLP1
ID
PB/REC
CAM/LINE
V_STOP
MCK
LINE_Y
AGC_CONT
PB_C_RF
1
TO VC-177 BOARD(14/14)
(SEE PAGE 4-63)
57
TO VC-177 BOARD(9/14)
(SEE PAGE 4-47)
2
TO VC-177 BOARD(2/14.5/14.6/14.9/14)
(SEE PAGE 4-24.31.36.46)
3
TO VC-177 BOARD (2/14.3/14.4/14.5/14.6/14.9/14)
(SEE PAGE 4-24.25.30.31.36.46)
4
TO VC-177 BOARD(2/14.3/ 14.4/14.5/14.6/14.9/14.11/14.12/14)
(SEE PAGE 4-24.25.30.31.36.46.54.57)
5
TO VC-177 BOARD (2/14.3/14.5/14.6/14.9/14)
(SEE PAGE 4-24.25.31.36.47)
11
TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)
6
TO VC-177 BOARD(2/14)
(SEE PAGE 4-22)
7
TO VC-177 BOARD(3/14)
(SEE PAGE 4-27)
9
TO VC-177 BOARD (2/14.3/14.5/14.6/14.8/14)
(SEE PAGE 4-24.27.31.36.43)
10
TO VC-177 BOARD(12/14)
(SEE PAGE 4-57)
8
TO VC-177 BOARD(7/14)
(SEE PAGE 4-41)


VC-177 BOARD(CH BLOCK)
67
2.2Vp-p
14.187MHz
IC202 11 CAMERA REC/PB
68
2Vp-p
14.187MHz
IC202 12 CAMERA REC/PB
69
0.6Vp-p
H
IC203 8 PB
69
0.92Vp-p
H
IC203 8 CAMERA REC

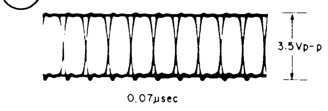
VC-177 (CAMERA (2)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.

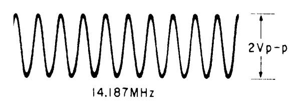
VC-177 BOARD (CA BLOCK)

(47)



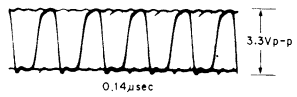
IC151 ①-⑤,⑧-⑫ CAMERA REC

(48)



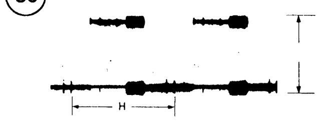
IC151 ㉒ CAMERA REC

(49)



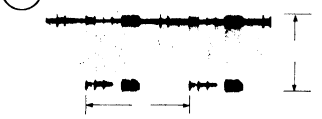
IC152 ⑨—⑫ CAMERA REC

(50)



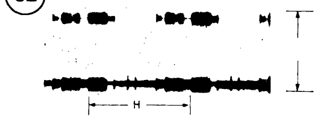
IC152 ㉛ CAMERA REC

(51)



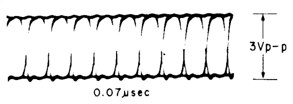
IC152 ㉜ CAMERA REC

(52)



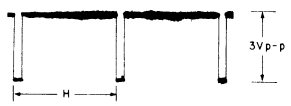
IC152 ㉝ CAMERA REC

(53)



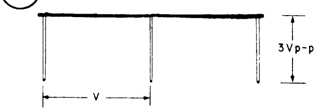
IC152 ㉞—㊳ CAMERA REC

(54)

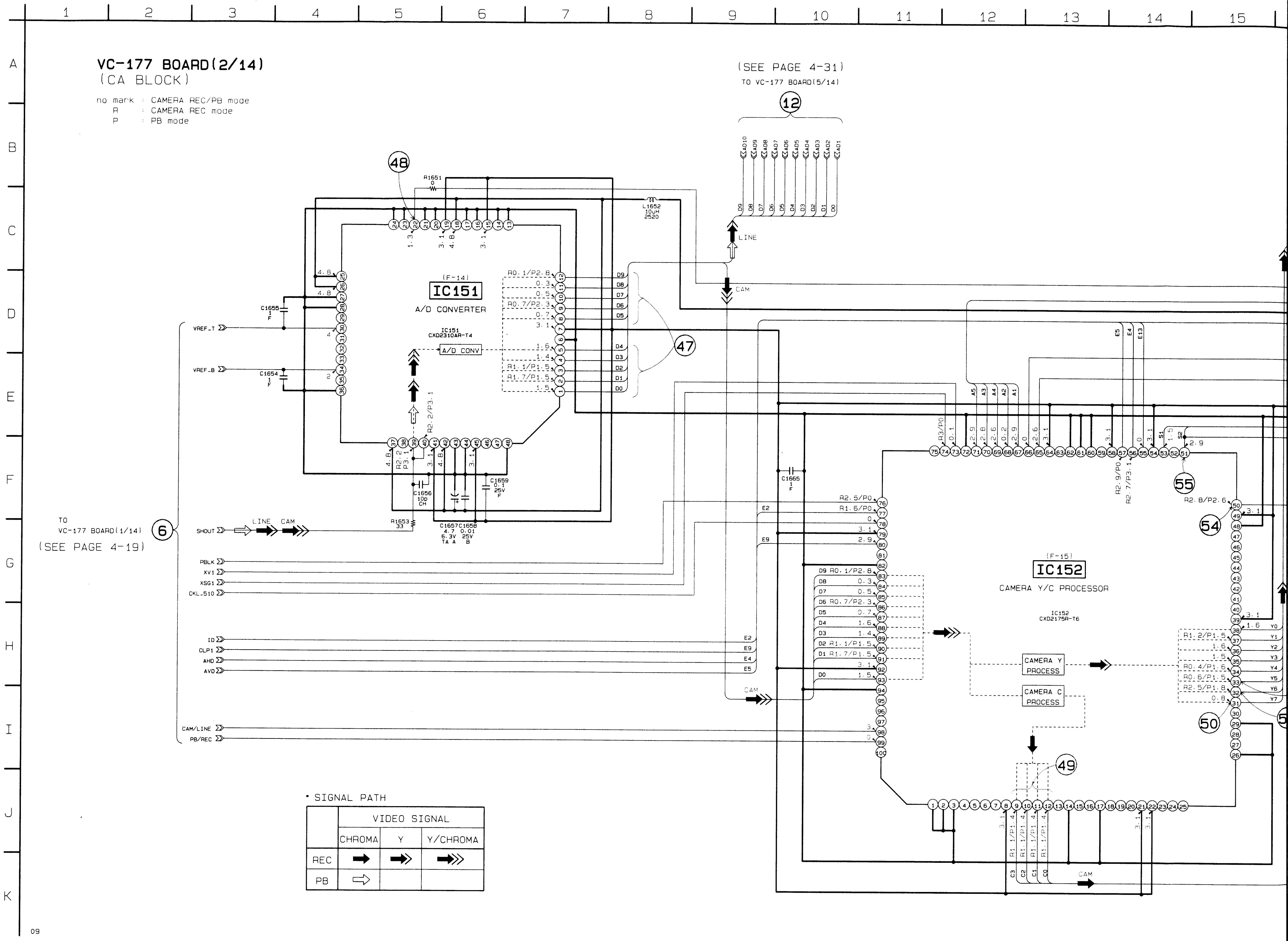


IC152 (50) CAMERA REC

(55)



IC152 (51) CAMERA REC

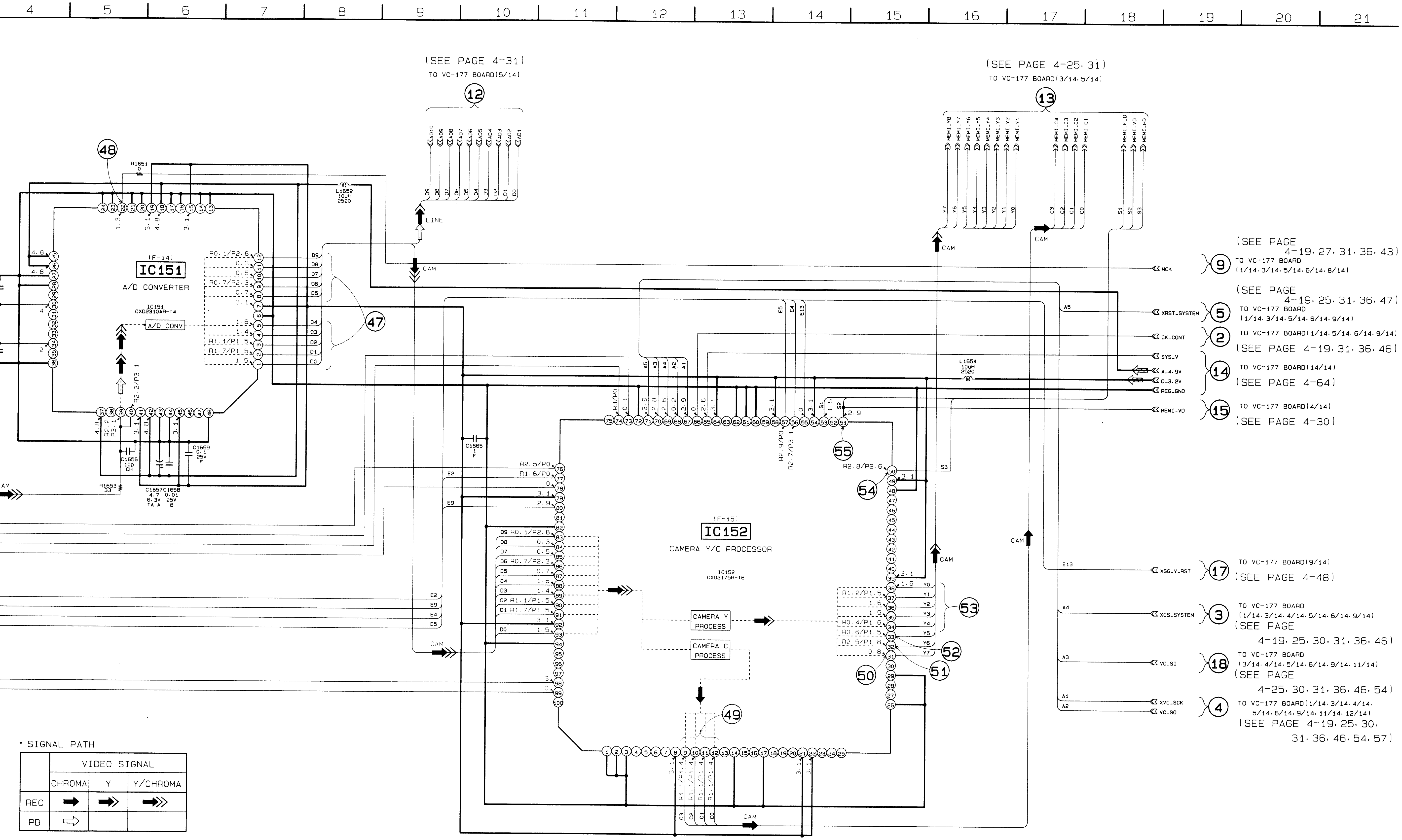

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
K
VC-177 BOARD(2/14)
(CA BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
(SEE PAGE 4-31)
TO VC-177 BOARD(5/14)
(12)
LINE
CAM
(48)
R1651
0
L1652
10μH
2520
(F-14)
IC151
A/D CONVERTER
IC151
CXD2310AR-T4
A/D CONV
(47)
C1655
1
F
C1654
1
F
VREF_T
VREF_B
C1656
10p
CH
C1659
0.1
25V
F
C1657 C1658
4.7 0.01
6.3V 25V
TA A B
R1653
33
TO
VC-177 BOARD(1/14)
(SEE PAGE 4-19)
(6)
SHOUT
LINE CAM
PBLK
XV1
XSG1
CKL_510
ID
CLP1
AHD
AVD
CAM/LINE
PB/REC
C1665
1
F
E2
E9
E4
E5
E13
(F-15)
IC152
CAMERA Y/C PROCESSOR
IC152
CXD2175R-T6
CAMERA Y
PROCESS
CAMERA C
PROCESS
(49)
(50)
(54)
(55)
CAM
09

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡»	➡»
PB	⇨		

MC-Service

- **Refer to page 4–13 for Printed Wiring Board.**


4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
(SEE PAGE 4-31)
TO VC-177 BOARD(5/14)
12
(SEE PAGE 4-25, 31)
TO VC-177 BOARD(3/14, 5/14)
13
48
R1651 0
L1652 10uH 2520
LINE
CAM
(F-14)
IC151
A/D CONVERTER
IC151 CXD2310AR-T4
A/D CONV
47
C1656 10p CH
C1657 4.7 6.3V TA A
C1658 0.01 25V B
C1659 0.1 25V F
R1653 33
C1665 1 F
L1654 10uH 2520
(F-15)
IC152
CAMERA Y/C PROCESSOR
IC152 CXD2175R-T6
CAMERA Y PROCESS
CAMERA C PROCESS
49
50
51
52
53
54
55
MCK
XRST_SYSTEM
CK_CONT
SYS_V
A_4.9V
D_3.2V
REG_GND
MEMI_VD
XSG_V_RST
XCS_SYSTEM
VC_SI
XVC_SCK
VC_SO
9
(SEE PAGE 4-19, 27, 31, 36, 43)
TO VC-177 BOARD (1/14, 3/14, 5/14, 6/14, 8/14)
5
(SEE PAGE 4-19, 25, 31, 36, 47)
TO VC-177 BOARD (1/14, 3/14, 5/14, 6/14, 9/14)
2
TO VC-177 BOARD(1/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 31, 36, 46)
14
TO VC-177 BOARD(14/14)
(SEE PAGE 4-64)
15
TO VC-177 BOARD(4/14)
(SEE PAGE 4-30)
17
TO VC-177 BOARD(9/14)
(SEE PAGE 4-48)
3
TO VC-177 BOARD (1/14, 3/14, 4/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 25, 30, 31, 36, 46)
18
TO VC-177 BOARD (3/14, 4/14, 5/14, 6/14, 9/14, 11/14)
(SEE PAGE 4-25, 30, 31, 36, 46, 54)
4
TO VC-177 BOARD(1/14, 3/14, 4/14, 5/14, 6/14, 9/14, 11/14, 12/14)
(SEE PAGE 4-19, 25, 30, 31, 36, 46, 54, 57)

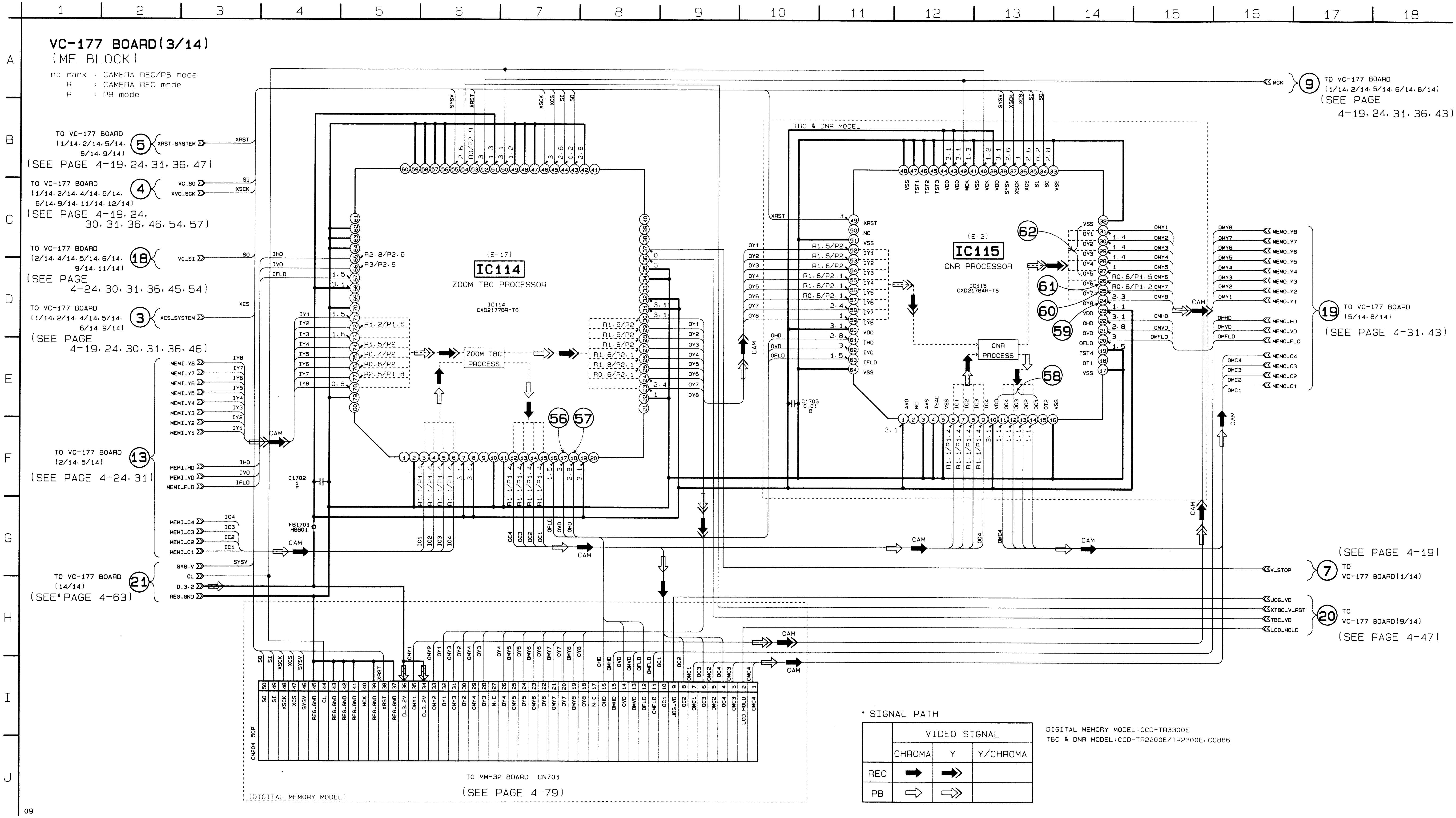
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	⇛
PB	⇨		

VC-177 (CAMERA (3)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.



VC-177 BOARD(3/14)
(ME BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
TO VC-177 BOARD (1/14, 2/14, 5/14, 6/14, 9/14) (SEE PAGE 4-19, 24, 31, 36, 47)
XRST_SYSTEM
TO VC-177 BOARD (1/14, 2/14, 4/14, 5/14, 6/14, 9/14, 11/14, 12/14) (SEE PAGE 4-19, 24, 30, 31, 36, 46, 54, 57)
VC_SO
XVC_SCK
TO VC-177 BOARD (2/14, 4/14, 5/14, 6/14, 9/14, 11/14) (SEE PAGE 4-24, 30, 31, 36, 45, 54)
VC_SI
TO VC-177 BOARD (1/14, 2/14, 4/14, 5/14, 6/14, 9/14) (SEE PAGE 4-19, 24, 30, 31, 36, 46)
XCS_SYSTEM
TO VC-177 BOARD (2/14, 5/14) (SEE PAGE 4-24, 31)
MEMI_Y8
MEMI_Y7
MEMI_Y6
MEMI_Y5
MEMI_Y4
MEMI_Y3
MEMI_Y2
MEMI_Y1
MEMI_HD
MEMI_VD
MEMI_FLD
MEMI_C4
MEMI_C3
MEMI_C2
MEMI_C1
TO VC-177 BOARD (14/14) (SEE PAGE 4-63)
SYS_V
CL
D_3.2
REG_GND
IC114
ZOOM TBC PROCESSOR
IC114 CXD2177AR-T6
ZOOM TBC PROCESS
(E-17)
C1702
FB1701 HS601
C1703 0.01 B
TBC & DNR MODEL
IC115
CNR PROCESSOR
IC115 CXD2178AR-T6
(E-2)
CNR PROCESS
CAM
TO VC-177 BOARD (1/14, 2/14, 5/14, 6/14, 8/14) (SEE PAGE 4-19, 24, 31, 36, 43)
MCK
TO VC-177 BOARD (5/14, 8/14) (SEE PAGE 4-31, 43)
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
MEMO_HD
MEMO_VD
MEMO_FLD
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
(SEE PAGE 4-19)
TO VC-177 BOARD(1/14)
V_STOP
TO VC-177 BOARD(9/14) (SEE PAGE 4-47)
JOG_VD
XTBC_V_RST
TBC_VD
LCD_HOLD
CN204 50P
TO MM-32 BOARD CN701 (SEE PAGE 4-79)
(DIGITAL MEMORY MODEL)
09

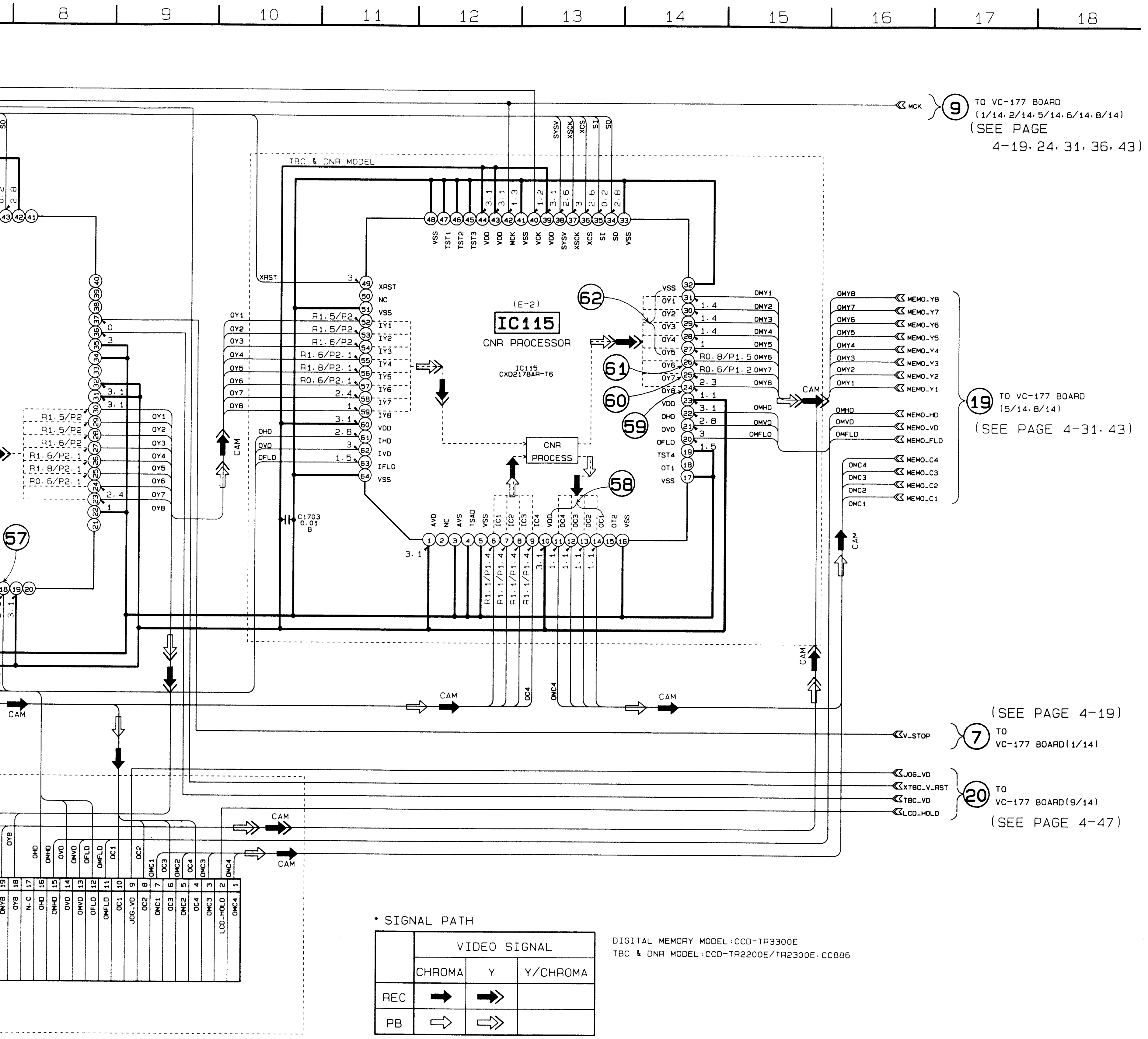
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	
PB	⇨	⇨	

DIGITAL MEMORY MODEL : CCD-TR3300E
TBC & DNR MODEL : CCD-TR2200E/TR2300E, CCB86

MC-Service

/iring Board.

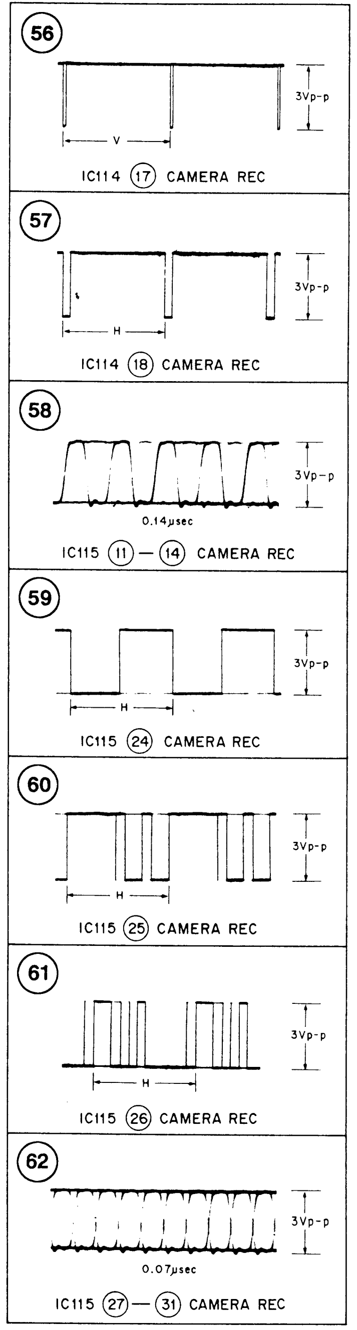

8
9
10
11
12
13
14
15
16
17
18
TBC & DNR MODEL
IC115
(E-2)
CNR PROCESSOR
IC115
CXD2178AR-T6
CNR
PROCESS
XRST
NC
VSS
IY1
IY2
IY3
IY4
IY5
IY6
IY7
IY8
VDD
IHD
IVD
IFLD
VSS
TST1
TST2
TST3
VDD
MCK
VCK
SYSV
XSCK
XCS
SI
SO
OY1
OY2
OY3
OY4
OY5
OY6
OY7
OY8
OHD
OVD
OFLD
TST4
OT1
AVD
AVS
TSAD
IC1
IC2
IC3
IC4
OC4
OC3
OC2
OC1
OT2
OMY1
OMY2
OMY3
OMY4
OMY5
OMY6
OMY7
OMY8
OMHD
OMVD
OMFLD
OMC1
OMC2
OMC3
OMC4
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
MEMO_HD
MEMO_VD
MEMO_FLD
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
C1703
0.01
B
CAM
R1.5/P2
R1.6/P2.1
R1.8/P2.1
R0.6/P2.1
R0.8/P1.5
R0.6/P1.2
R1.1/P1.4
MCK
9
TO VC-177 BOARD
(1/14, 2/14, 5/14, 6/14, 8/14)
(SEE PAGE
4-19, 24, 31, 36, 43)
19
TO VC-177 BOARD
(5/14, 8/14)
(SEE PAGE 4-31, 43)
V_STOP
7
TO
VC-177 BOARD(1/14)
(SEE PAGE 4-19)
JOG_VD
XTBC_V_RST
TBC_VD
LCD_HOLD
20
TO
VC-177 BOARD(9/14)
(SEE PAGE 4-47)
57
58
59
60
61
62
OY8
OHD
OMHD
OVD
OMVD
OFLD
OMFLD
OC1
OC2
OMC1
OC3
OMC2
OC4
OMC3
OMC4
OMY8
N.C
JOG_VD
LCD_HOLD

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	
PB	⇨	⇨	

DIGITAL MEMORY MODEL:CCD-TR3300E
TBC & DNR MODEL:CCD-TR2200E/TR2300E, CCB86

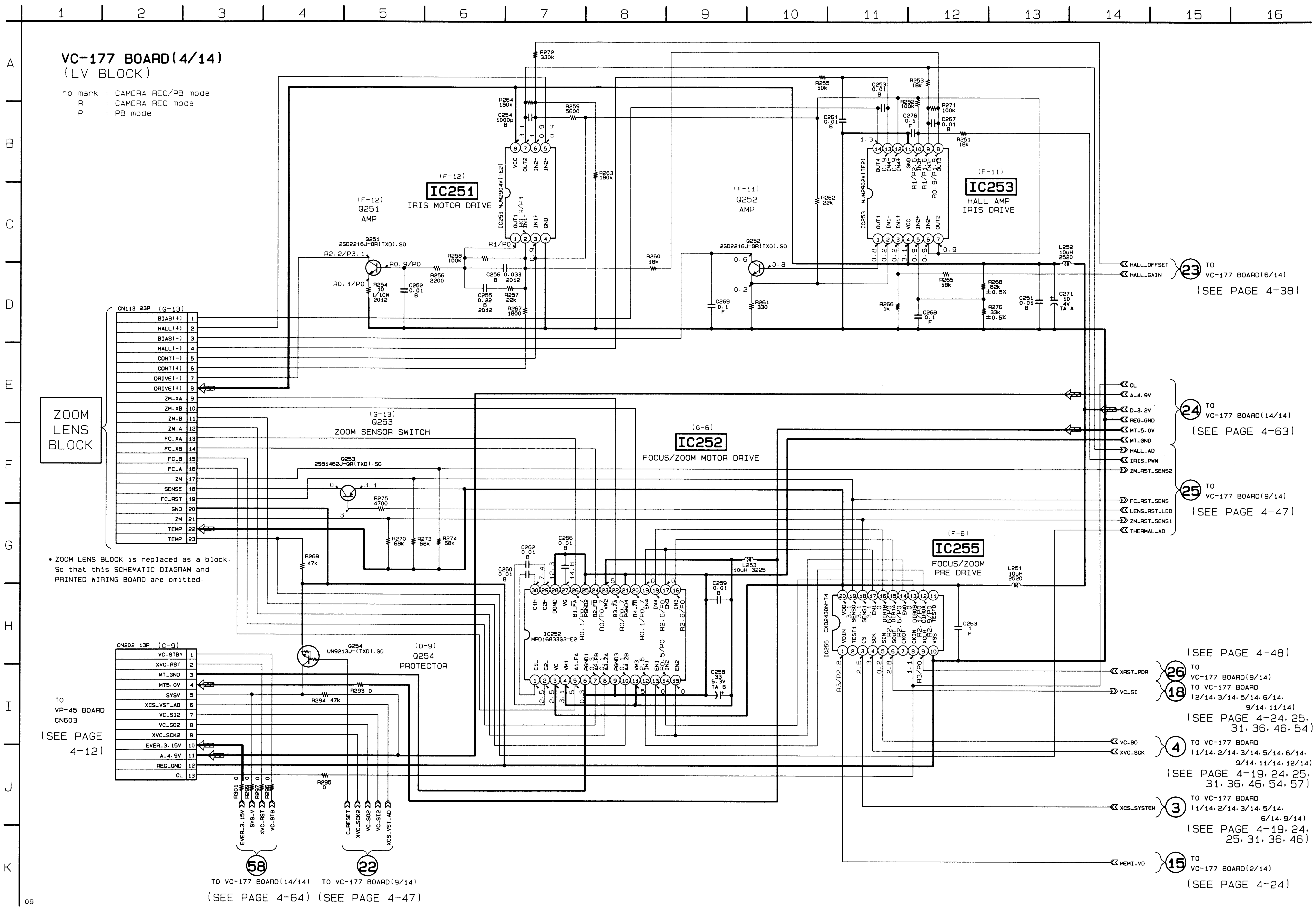
VC-177 BOARD (ME BLOCK)



VC-177 (CAMERA (4)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4-13 for Printed Wiring Board.

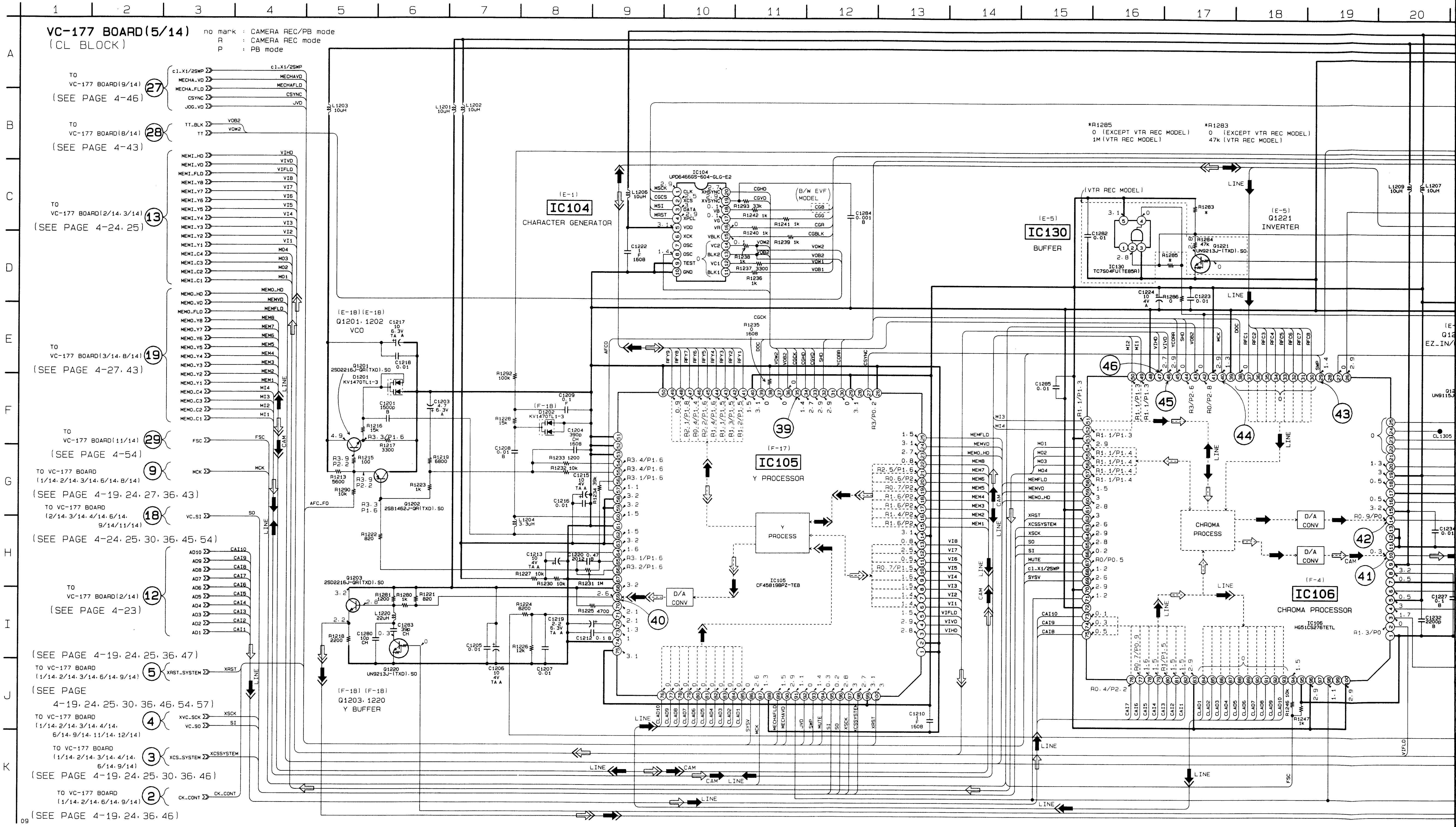


VC-177 BOARD(4/14)
(LV BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
IC251
IRIS MOTOR DRIVE
(F-12)
Q251
AMP
2SD2216J-QR(TXD).SO
IC253
HALL AMP
IRIS DRIVE
(F-11)
Q252
AMP
2SD2216J-QR(TXD).SO
ZOOM LENS BLOCK
CN113 23P (G-13)
BIAS(+)
HALL(+)
BIAS(-)
HALL(-)
CONT(-)
CONT(+)
DRIVE(-)
DRIVE(+)
ZM_XA
ZM_XB
ZM_B
ZM_A
FC_XA
FC_XB
FC_B
FC_A
ZM
SENSE
FC_RST
GND
ZM
TEMP
TEMP
(G-13)
Q253
ZOOM SENSOR SWITCH
2SB1462J-QR(TXD).SO
IC252
FOCUS/ZOOM MOTOR DRIVE
(G-6)
MPD168336-E2
IC255
FOCUS/ZOOM PRE DRIVE
(F-6)
CXD2430N-T4
(D-9)
Q254
PROTECTOR
UN9213J-(TXD).SO
CN202 13P (C-9)
VC_STBY
XVC_RST
MT_GND
MT5.0V
SYSV
XCS_VST_AD
VC_SI2
VC_SO2
XVC_SCK2
EVER_3.15V
A_4.9V
REG_GND
CL
TO VP-45 BOARD CN603
(SEE PAGE 4-12)
• ZOOM LENS BLOCK is replaced as a block. So that this SCHEMATIC DIAGRAM and PRINTED WIRING BOARD are omitted.
HALL_OFFSET
HALL_GAIN
23 TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)
CL
A_4.9V
D_3.2V
REG_GND
MT_5.0V
MT_GND
HALL_AD
IRIS_PWM
ZM_RST_SENS2
24 TO VC-177 BOARD(14/14)
(SEE PAGE 4-63)
FC_RST_SENS
LENS_RST_LED
ZM_RST_SENS1
THERMAL_AD
25 TO VC-177 BOARD(9/14)
(SEE PAGE 4-47)
(SEE PAGE 4-48)
XRST_POR
26 TO VC-177 BOARD(9/14)
VC_SI
18 TO VC-177 BOARD (2/14, 3/14, 5/14, 6/14, 9/14, 11/14)
(SEE PAGE 4-24, 25, 31, 36, 46, 54)
VC_SO
XVC_SCK
4 TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14, 9/14, 11/14, 12/14)
(SEE PAGE 4-19, 24, 25, 31, 36, 46, 54, 57)
XCS_SYSTEM
3 TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 24, 25, 31, 36, 46)
MEMI_VD
15 TO VC-177 BOARD(2/14)
(SEE PAGE 4-24)
EVER_3.15V
SYS_V
XVC_RST
VC_STB
58 TO VC-177 BOARD(14/14)
(SEE PAGE 4-64)
C_RESET
XVC_SCK2
VC_SO2
VC_SI2
XCS_VST_AD
22 TO VC-177 BOARD(9/14)
(SEE PAGE 4-47)
09

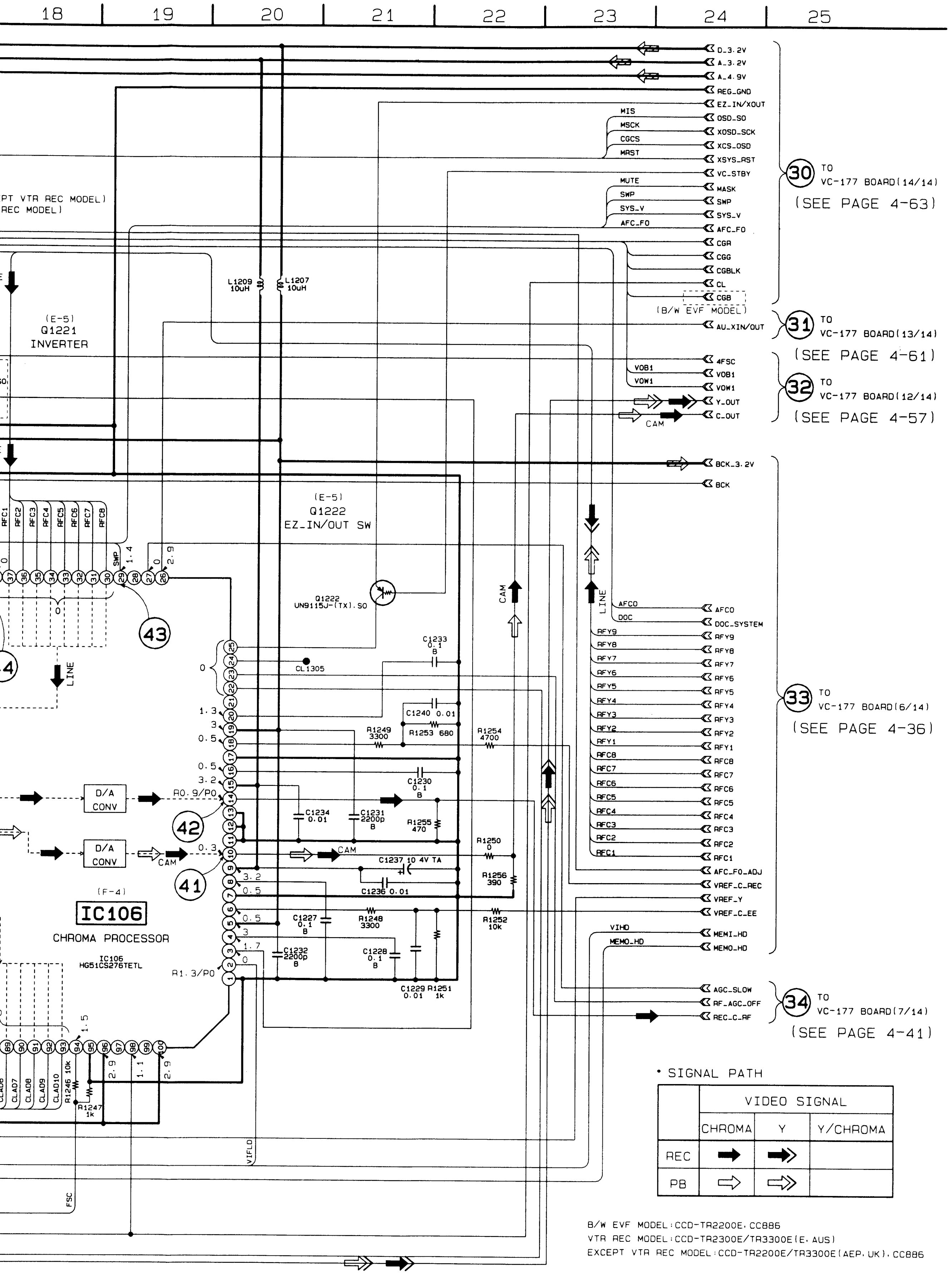
VC-177 (Y/C PROCESS) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.



VC-177 BOARD(5/14)
(CL BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
TO VC-177 BOARD(9/14) (SEE PAGE 4-46)
TO VC-177 BOARD(8/14) (SEE PAGE 4-43)
TO VC-177 BOARD(2/14, 3/14) (SEE PAGE 4-24, 25)
TO VC-177 BOARD(3/14, 8/14) (SEE PAGE 4-27, 43)
TO VC-177 BOARD(11/14) (SEE PAGE 4-54)
TO VC-177 BOARD (1/14, 2/14, 3/14, 6/14, 8/14) (SEE PAGE 4-19, 24, 27, 36, 43)
TO VC-177 BOARD (2/14, 3/14, 4/14, 6/14, 9/14/11/14) (SEE PAGE 4-24, 25, 30, 36, 45, 54)
TO VC-177 BOARD(2/14) (SEE PAGE 4-23)
(SEE PAGE 4-19, 24, 25, 36, 47)
TO VC-177 BOARD (1/14, 2/14, 3/14, 6/14, 9/14) (SEE PAGE 4-19, 24, 25, 30, 36, 46, 54, 57)
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 6/14, 9/14, 11/14, 12/14)
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 6/14, 9/14) (SEE PAGE 4-19, 24, 25, 30, 36, 46)
TO VC-177 BOARD (1/14, 2/14, 6/14, 9/14) (SEE PAGE 4-19, 24, 36, 46)
IC104 CHARACTER GENERATOR
IC104 UPD6466GS-604-GLG-E2
IC105 Y PROCESSOR
IC105 CF45819BPZ-TEB
Y PROCESS
D/A CONV
IC130 BUFFER
IC130 TC7S04FU(TE85R)
Q1221 INVERTER
IC106 CHROMA PROCESSOR
IC106 HG51CS276TETL
CHROMA PROCESS
Q1201, 1202 VCO
Q1203, 1220 Y BUFFER
*R1285 0 (EXCEPT VTR REC MODEL) 1M (VTR REC MODEL)
*R1283 0 (EXCEPT VTR REC MODEL) 47k (VTR REC MODEL)
(VTR REC MODEL)
(B/W EVF MODEL)
LINE
CAM

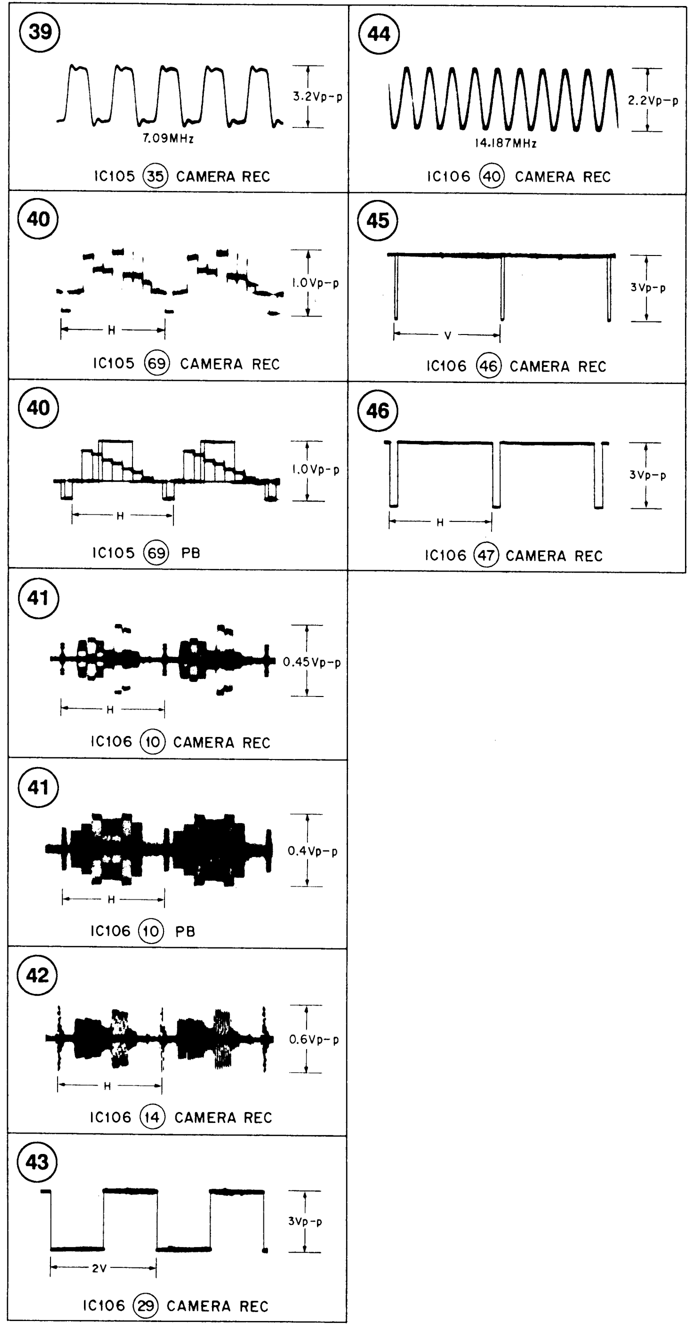

18
19
20
21
22
23
24
25
D_3.2V
A_3.2V
A_4.9V
REG_GND
EZ_IN/XOUT
MIS
OSD_SO
MSCK
XOSD_SCK
CGCS
XCS_OSD
MRST
XSYS_RST
VC_STBY
MUTE
MASK
SWP
SYS_V
AFC_FO
CGR
CGG
CGBLK
CL
CGB
(B/W EVF MODEL)
AU_XIN/OUT
4FSC
VOB1
VDW1
Y_OUT
C_OUT
CAM
BCK_3.2V
BCK
AFCO
DOC
DOC_SYSTEM
RFY9
RFY8
RFY7
RFY6
RFY5
RFY4
RFY3
RFY2
RFY1
RFC8
RFC7
RFC6
RFC5
RFC4
RFC3
RFC2
RFC1
AFC_FO_ADJ
VREF_C_REC
VREF_Y
VREF_C_EE
VIHD
MEMO_HD
MEMI_HD
AGC_SLOW
RF_AGC_OFF
REC_C_RF
(30) TO VC-177 BOARD(14/14) (SEE PAGE 4-63)
(31) TO VC-177 BOARD(13/14) (SEE PAGE 4-61)
(32) TO VC-177 BOARD(12/14) (SEE PAGE 4-57)
(33) TO VC-177 BOARD(6/14) (SEE PAGE 4-36)
(34) TO VC-177 BOARD(7/14) (SEE PAGE 4-41)
PT VTR REC MODEL)
REC MODEL)
L1209 10uH
L1207 10uH
(E-5) Q1221 INVERTER
(E-5) Q1222 EZ_IN/OUT SW
Q1222 UN9115J-(TX).SO
CL1305
C1233 0.1 B
C1240 0.01
R1249 3300
R1253 680
R1254 4700
C1230 0.1 B
C1234 0.01
C1231 2200p B
R1255 470
R1250 0
C1237 10 4V TA
R1256 390
C1236 0.01
C1227 0.1 B
R1248 3300
R1252 10k
C1232 2200p B
C1228 0.1 B
C1229 0.01
R1251 1k
D/A CONV
R0.9/P0
R1.3/P0
(41)
(42)
(43)
(F-4) IC106 CHROMA PROCESSOR
IC106 HG51CS276TETL
LINE
CAM
R1246 10k
R1247 1k
VIFLD
FSC
CL406
CL407
CL408
CL409
CL4010

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	
PB	⇨	⇨	

B/W EVF MODEL: CCD-TR2200E, CC886
VTR REC MODEL: CCD-TR2300E/TR3300E(E, AUS)
EXCEPT VTR REC MODEL: CCD-TR2200E/TR3300E(AEP, UK), CC886

VC-177 BOARD (CL BLOCK)



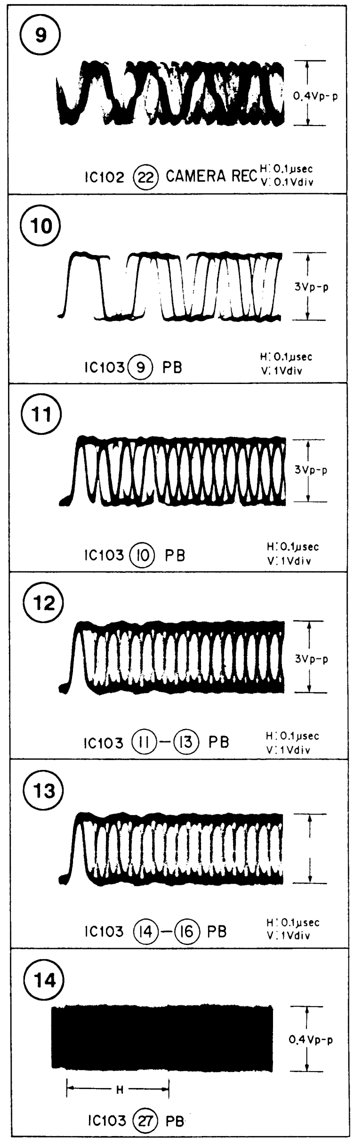
MC-Service

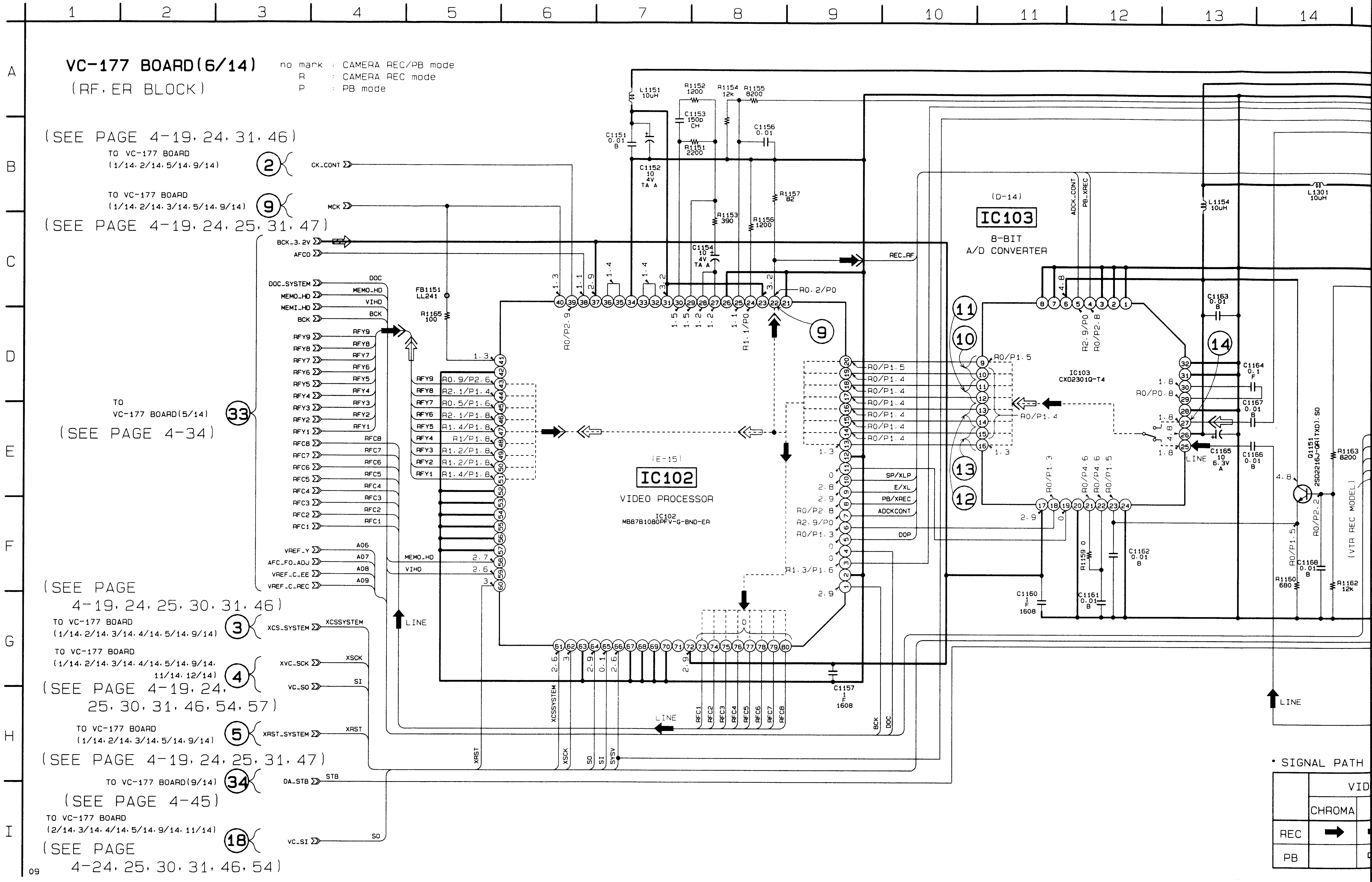
VC-177 (VIDEO PROCESS (1)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4-13 for Printed Wiring Board.

VC-177 BOARD (RF BLOCK)

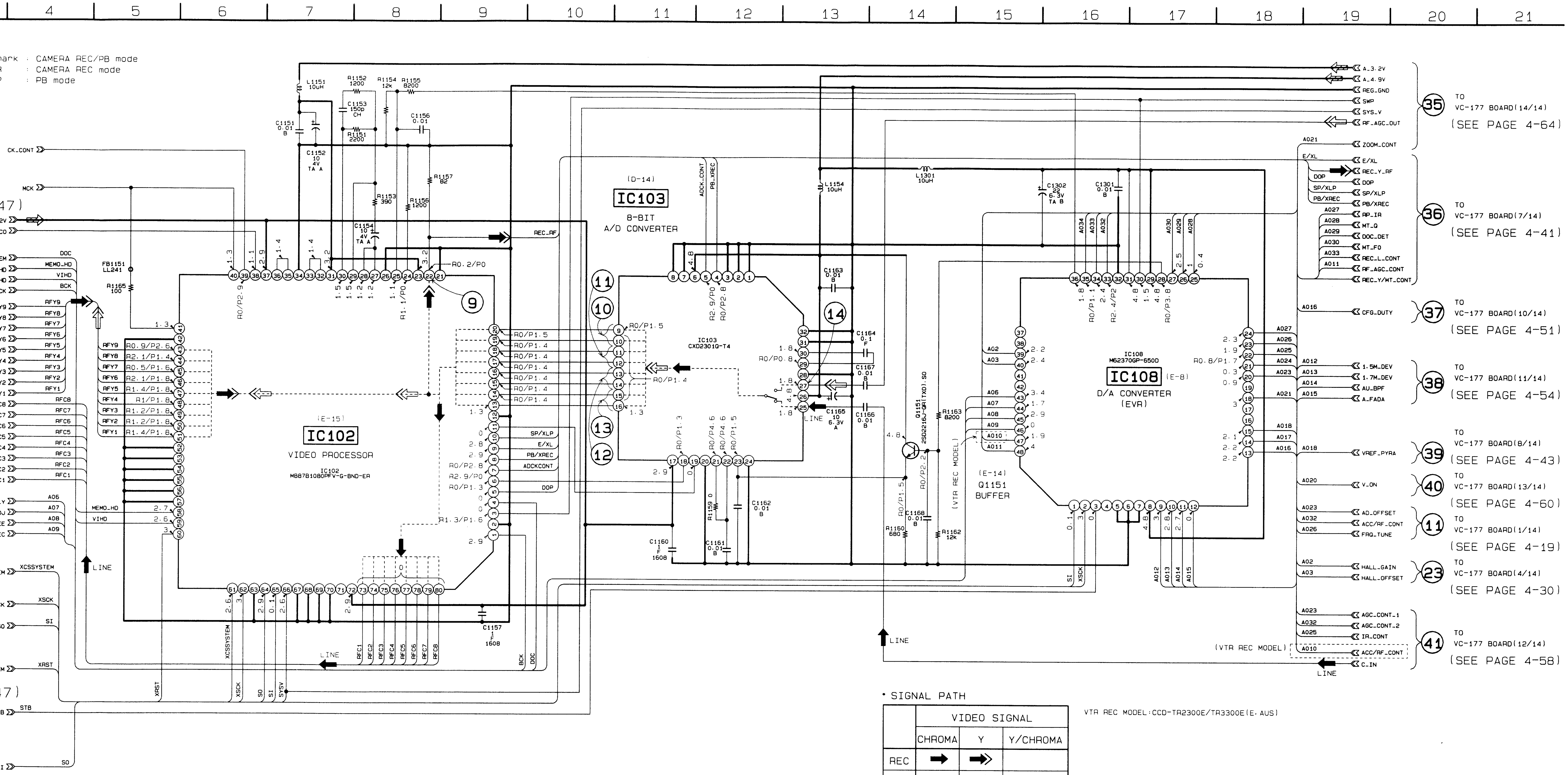




VC-177 BOARD(6/14)
(RF, ER BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
(SEE PAGE 4-19, 24, 31, 46)
TO VC-177 BOARD (1/14, 2/14, 5/14, 9/14) ② CK_CONT
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 9/14) ⑨ MCK
(SEE PAGE 4-19, 24, 25, 31, 47)
BCK_3.2V
AFCO
DOC_SYSTEM
MEMO_HD
MEMI_HD
BCK
RFY9 RFY8 RFY7 RFY6 RFY5 RFY4 RFY3 RFY2 RFY1
RFC8 RFC7 RFC6 RFC5 RFC4 RFC3 RFC2 RFC1
TO VC-177 BOARD(5/14) ㉝
(SEE PAGE 4-34)
VREF_Y
AFC_FO_ADJ
VREF_C_EE
VREF_C_REC
A06 A07 A08 A09
(SEE PAGE 4-19, 24, 25, 30, 31, 46)
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 9/14) ③ XCS_SYSTEM
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 9/14, 11/14, 12/14) ④ XVC_SCK VC_SO
(SEE PAGE 4-19, 24, 25, 30, 31, 46, 54, 57)
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 9/14) ⑤ XRST_SYSTEM
(SEE PAGE 4-19, 24, 25, 31, 47)
TO VC-177 BOARD(9/14) ㉞ DA_STB
(SEE PAGE 4-45)
TO VC-177 BOARD (2/14, 3/14, 4/14, 5/14, 9/14, 11/14) ⑱ VC_SI
(SEE PAGE 4-24, 25, 30, 31, 46, 54)
FB1151 LL241
R1165 100
L1151 10uH
R1152 1200
R1154 12k
R1155 8200
C1151 0.01 B
C1153 150p CH
R1151 2200
C1156 0.01
C1152 10 4V TA A
R1157 82
R1153 390
R1156 1200
C1154 10 4V TA A
REC_RF
R0.2/P0
(E-15)
IC102
VIDEO PROCESSOR
IC102 MB87B1080PFV-G-BND-ER
R0.9/P2.6 R2.1/P1.4 R0.5/P1.6 R2.1/P1.8 R1.4/P1.8 R1/P1.8 R1.2/P1.8 R1.2/P1.8 R1.4/P1.8
R0/P1.5 R0/P1.4
SP/XLP E/XL PB/XREC ADCKCONT DOP
R0/P2.8 R2.9/P0 R0/P1.3 R1.3/P1.6
MEMO_HD VIHD
LINE
C1157 1 1608
XCSSYSTEM XSCK SO SI SYSV XRST
RFC1 RFC2 RFC3 RFC4 RFC5 RFC6 RFC7 RFC8
BCK DOC
(D-14)
IC103
8-BIT A/D CONVERTER
IC103 CXD2301Q-T4
ADCK_CONT PB_XREC
R2.9/P0 R0/P2.8
R0/P1.5 R0/P1.4 R0/P0.8
R0/P1.3 R0/P4.6 R0/P1.5
C1163 0.01 B
C1164 0.1 F
C1167 0.01 B
C1165 10 6.3V A
C1166 0.01 B
C1162 0.01 B
C1160 1 1608
C1161 0.01 B
R1159 0
L1154 10uH
L1301 10uH
Q1151 2SD2216J-QR(TX).SO
R1163 8200
R1160 680
C1168 0.01 B
R1162 12k
R0/P2.2 R0/P1.5
(VTR REC MODEL)
LINE
• SIGNAL PATH
VID
CHROMA
REC
PB
09

MC-Service

TIC DIAGRAM • Refer to page 4-13 for Printed Wiring Board.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21
ark : CAMERA REC/PB mode
R : CAMERA REC mode
: PB mode
CK_CONT
MCK
47)
(D-14)
IC103
8-BIT
A/D CONVERTER
IC103
CXD2301Q-T4
(E-15)
IC102
VIDEO PROCESSOR
IC102
M88781080PFV-G-BND-ER
IC108
M62370GP-650D
IC108 (E-8)
D/A CONVERTER
(EVR)
(E-14)
Q1151
BUFFER
Q1151
2SD2216J-QR(TX).SO
(VTR REC MODEL)
L1151 10uH
R1152 1200
R1154 12k
R1155 8200
C1153 150p CH
R1151 2200
C1156 0.01
C1151 0.01 B
C1152 10 4V TA A
R1157 82
R1153 390
R1156 1200
C1154 10 4V TA A
FB1151 LL241
R1165 100
REC_RF
RO.2/PO
L1154 10uH
L1301 10uH
C1302 22 6.3V TA B
C1301 0.01 B
C1163 0.01 B
C1164 0.1 F
C1167 0.01 B
C1165 10 6.3V A
C1166 0.01 B
C1162 0.01 B
C1160 1 F 1608
C1161 0.01 B
C1157 1 F 1608
C1168 0.01 B
R1150 680
R1153 8200
R1162 12k
R1159 0
LINE
XCSSYSTEM
XSCK
SI
SO
XRST
STB
MEMO_HD
VIHD
DOC
BCK
SP/XLP
E/XL
PB/XREC
ADCKCONT
DOP
A_3.2V
A_4.9V
REG_GND
SWP
SYS_V
RF_AGC_OUT
ZOOM_CONT
E/XL
REC_Y_RF
DOP
SP/XLP
PB/XREC
RP_IR
MT_Q
DOC_DET
MT_FO
REC_L_CONT
RF_AGC_CONT
REC_Y/MT_CONT
CFG_DUTY
1.5M_DEV
1.7M_DEV
AU_BPF
A_FADA
VREF_PYRA
V_ON
AD_OFFSET
ACC/RF_CONT
FRQ_TUNE
HALL_GAIN
HALL_OFFSET
AGC_CONT_1
AGC_CONT_2
IR_CONT
ACC/RF_CONT
C_IN
(VTR REC MODEL)
35 TO VC-177 BOARD(14/14) (SEE PAGE 4-64)
36 TO VC-177 BOARD(7/14) (SEE PAGE 4-41)
37 TO VC-177 BOARD(10/14) (SEE PAGE 4-51)
38 TO VC-177 BOARD(11/14) (SEE PAGE 4-54)
39 TO VC-177 BOARD(8/14) (SEE PAGE 4-43)
40 TO VC-177 BOARD(13/14) (SEE PAGE 4-60)
11 TO VC-177 BOARD(1/14) (SEE PAGE 4-19)
23 TO VC-177 BOARD(4/14) (SEE PAGE 4-30)
41 TO VC-177 BOARD(12/14) (SEE PAGE 4-58)
9
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14

• SIGNAL PATH

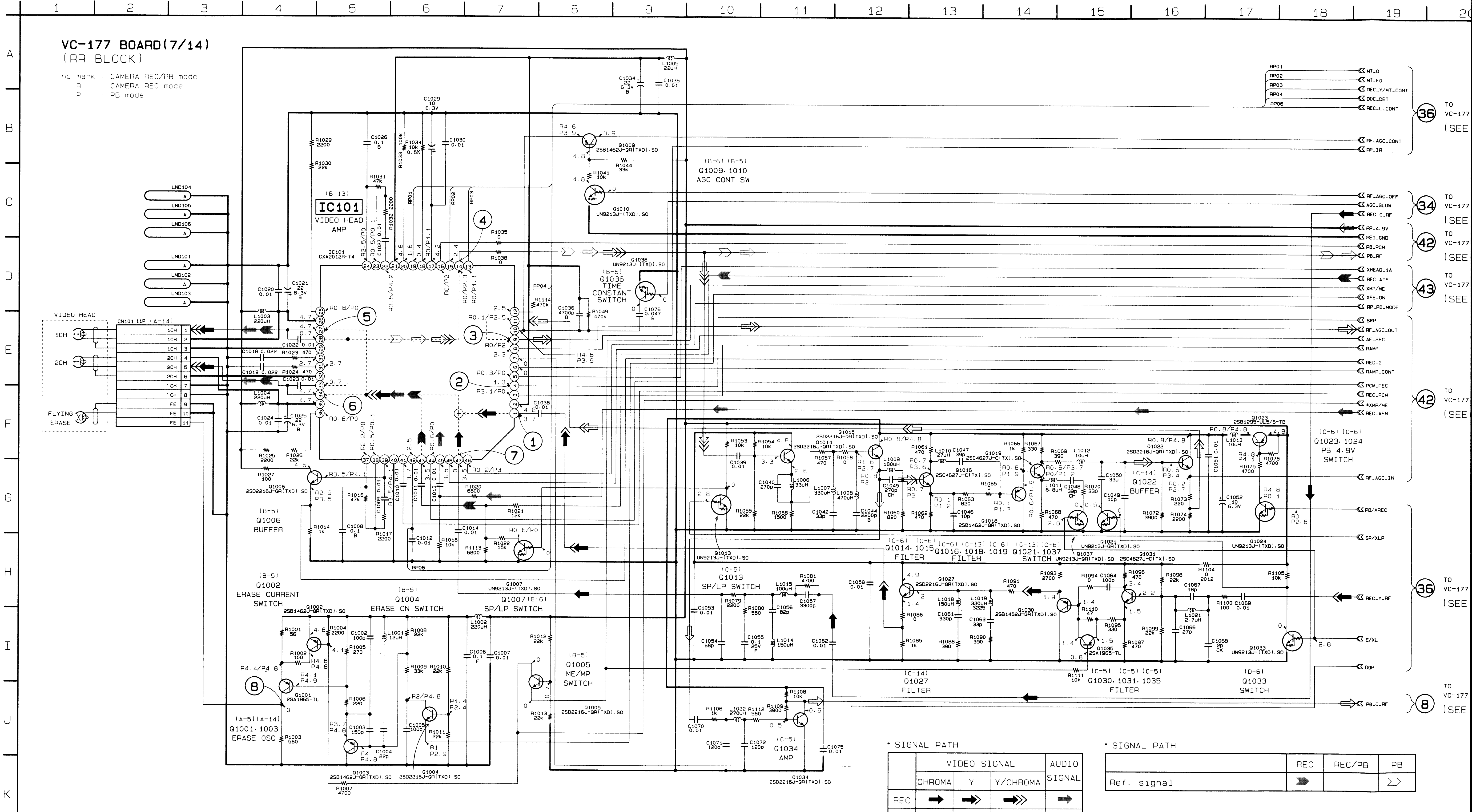
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	
PB		⇨	

VTR REC MODEL:CCD-TR2300E/TR3300E(E, AUS)

VC-177 (REC/PB HEAD AMP) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.



VC-177 BOARD(7/14)
(RR BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
VIDEO HEAD
1CH
2CH
FLYING ERASE
CN101 11P (A-14)
LND104
LND105
LND106
LND101
LND102
LND103
(B-13)
IC101
VIDEO HEAD AMP
IC101 CXA2012R-T4
(B-6) (B-5)
Q1009, 1010
AGC CONT SW
Q1009 2SB1462J-QR(TXD).SO
Q1010 UN9213J-(TXD).SO
(B-6)
Q1036
TIME CONSTANT SWITCH
Q1036 UN9213J-(TXD).SO
(B-5)
Q1006
BUFFER
Q1006 2SD2216J-QR(TXD).SO
(B-5)
Q1002
ERASE CURRENT SWITCH
Q1002 2SB1462J-QR(TXD).SO
(B-5)
Q1004
ERASE ON SWITCH
Q1007 (B-6)
SP/LP SWITCH
Q1007 UN9213J-(TXD).SO
(B-5)
Q1005
ME/MP SWITCH
Q1005 2SD2216J-QR(TXD).SO
(A-5) (A-14)
Q1001, 1003
ERASE OSC
Q1001 2SA1965-TL
Q1003 2SB1462J-QR(TXD).SO
Q1004 2SD2216J-QR(TXD).SO
(C-5)
Q1013
SP/LP SWITCH
Q1013 UN9213J-(TXD).SO
(C-6) (C-6)
Q1014, 1015
FILTER
(C-6) (C-13) (C-6)
Q1016, 1018, 1019
FILTER
(C-13) (C-6)
Q1021, 1037
SWITCH
(C-14)
Q1022
BUFFER
(C-6) (C-6)
Q1023, 1024
PB 4.9V SWITCH
Q1023 2SB1295-UL5/6-TB
Q1024 UN9213J-(TXD).SO
(C-14)
Q1027
FILTER
(C-5) (C-5) (C-5)
Q1030, 1031, 1035
FILTER
(D-6)
Q1033
SWITCH
(C-5)
Q1034
AMP
Q1034 2SD2216J-QR(TXD).SO
RP01
RP02
RP03
RP04
RP06
MT_Q
MT_FO
REC_Y/MT_CONT
DOC_DET
REC_L_CONT
RF_AGC_CONT
RP_IR
RF_AGC_OFF
AGC_SLOW
REC_C_RF
RP_4.9V
REG_GND
PB_PCM
PB_RF
XHEAD_1A
REC_ATF
XMP/ME
XFE_ON
RP_PB_MODE
SWP
RF_AGC_OUT
AF_REC
RAMP
REC_2
RAMP_CONT
PCM_REC
REC_PCM
XXMP/ME
REC_AFM
RF_AGC_IN
PB/XREC
SP/XLP
REC_Y_RF
E/XL
DOP
PB_C_RF
TO VC-177
(SEE
36
34
42
43
42
36
8

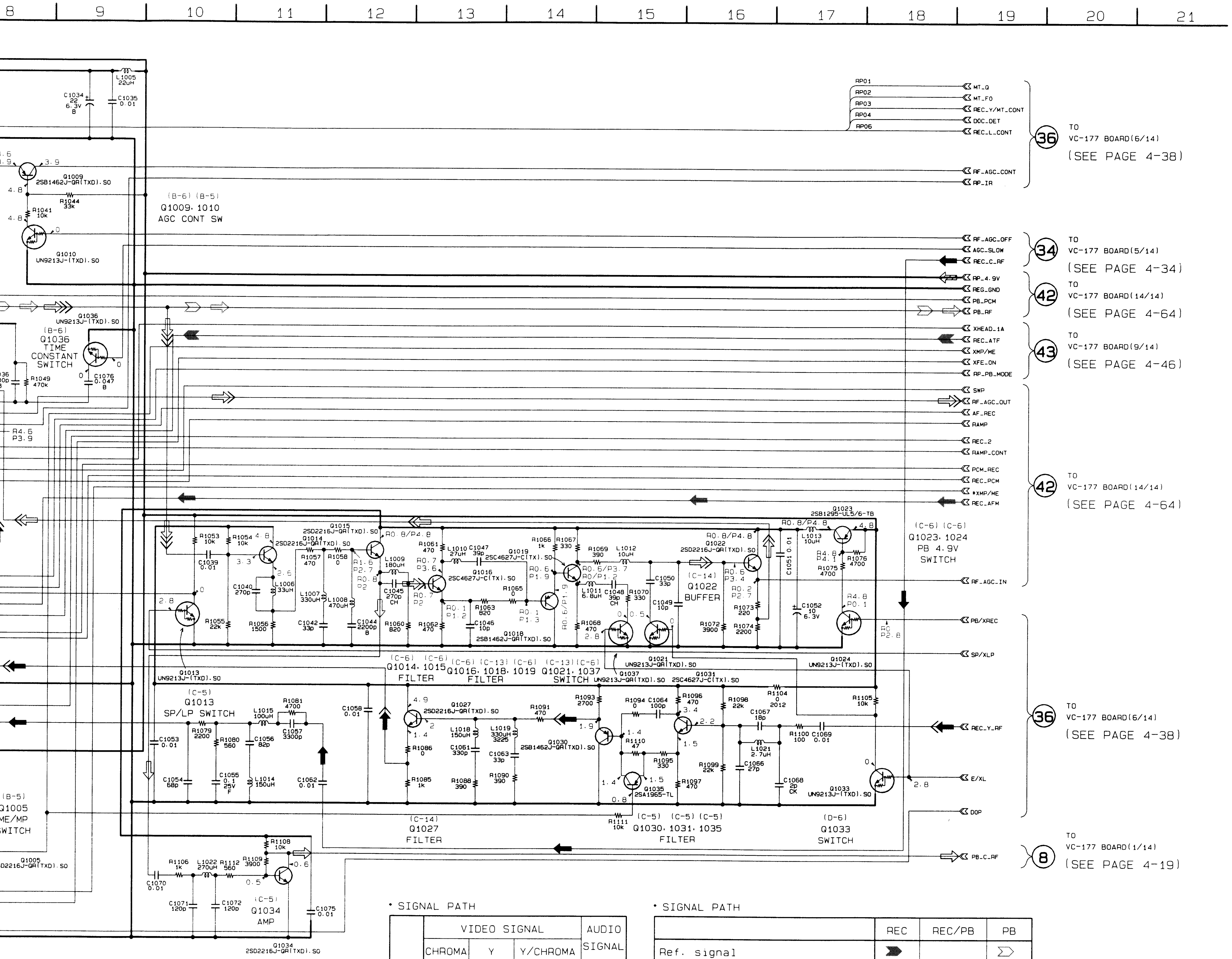
· SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

· SIGNAL PATH

	REC	REC/PB	PB
Ref. signal	➡		⇨

iring Board.


8
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14
15
16
17
18
19
20
21
RP01
RP02
RP03
RP04
RP06
MT_Q
MT_FO
REC_Y/MT_CONT
DOC_DET
REC_L_CONT
RF_AGC_CONT
RP_IR
TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
(B-6) (B-5) Q1009, 1010 AGC CONT SW
Q1009 2SB1462J-QR(TXD).SO
Q1010 UN9213J-(TXD).SO
R1044 33k
R1041 10k
C1034 22 6.3V B
C1035 0.01
L1005 22uH
RF_AGC_OFF
AGC_SLOW
REC_C_RF
TO VC-177 BOARD(5/14) (SEE PAGE 4-34)
RP_4.9V
REG_GND
PB_PCM
PB_RF
TO VC-177 BOARD(14/14) (SEE PAGE 4-64)
XHEAD_1A
REC_ATF
XMP/ME
XFE_ON
RP_PB_MODE
TO VC-177 BOARD(9/14) (SEE PAGE 4-46)
(B-6) Q1036 TIME CONSTANT SWITCH
Q1036 UN9213J-(TXD).SO
R1049 470k
C1076 0.047 B
R4.6 P3.9
SWP
RF_AGC_OUT
AF_REC
RAMP
REC_2
RAMP_CONT
PCM_REC
REC_PCM
XMP/ME
REC_AFM
TO VC-177 BOARD(14/14) (SEE PAGE 4-64)
Q1015 2SD2216J-QR(TXD).SO
Q1014 2SD2216J-QR(TXD).SO
Q1019 2SC4627J-C(TX).SO
Q1016 2SC4627J-C(TX).SO
Q1018 2SB1462J-QR(TXD).SO
Q1022 2SD2216J-QR(TXD).SO
(C-14) Q1022 BUFFER
Q1023 2SB1295-UL5/6-TB
(C-6) (C-6) Q1023, 1024 PB 4.9V SWITCH
RF_AGC_IN
PB/XREC
SP/XLP
Q1024 UN9213J-(TXD).SO
Q1013 UN9213J-(TXD).SO
(C-6) (C-6) Q1014, 1015 FILTER
(C-6) (C-13) (C-6) (C-13) (C-6) Q1016, 1018, 1019 Q1021, 1037 FILTER SWITCH
Q1021 UN9213J-QR(TXD).SO
Q1037 UN9213J-QR(TXD).SO
Q1031 2SC4627J-C(TX).SO
(C-5) Q1013 SP/LP SWITCH
Q1027 2SD2216J-QR(TXD).SO
Q1030 2SB1462J-QR(TXD).SO
Q1035 2SA1965-TL
Q1033 UN9213J-(TXD).SO
REC_Y_RF
E/XL
DOP
TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
(C-14) Q1027 FILTER
(C-5) (C-5) (C-5) Q1030, 1031, 1035 FILTER
(D-6) Q1033 SWITCH
(B-5) Q1005 ME/MP SWITCH
Q1005 2SD2216J-QR(TXD).SO
(C-5) Q1034 AMP
Q1034 2SD2216J-QR(TXD).SO
PB_C_RF
TO VC-177 BOARD(1/14) (SEE PAGE 4-19)
36
34
42
43
8

• SIGNAL PATH

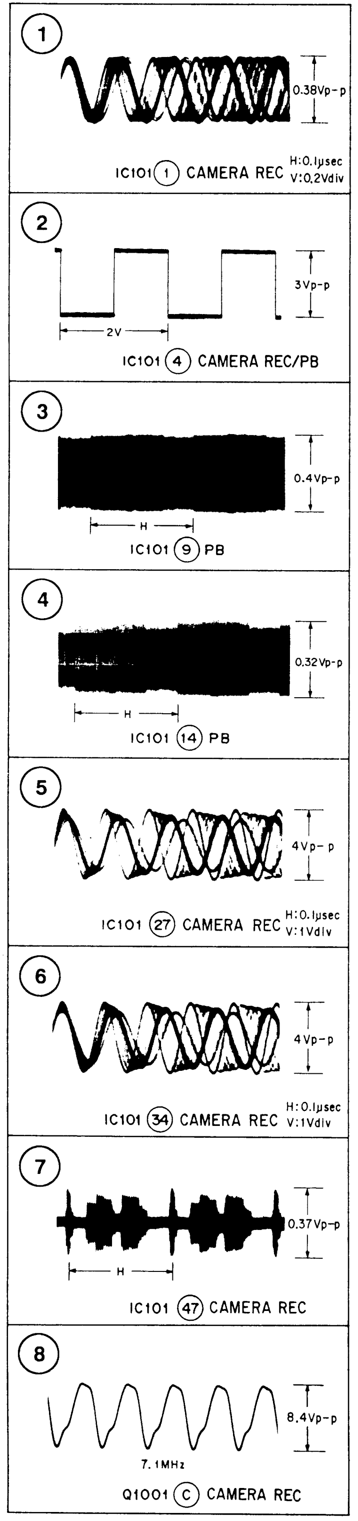
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡>	➡≫	➡
PB	⇨	⇨>	⇨≫	⇨

• SIGNAL PATH

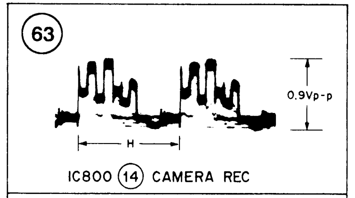
	REC	REC/PB	PB
Ref. signal	➤		▷

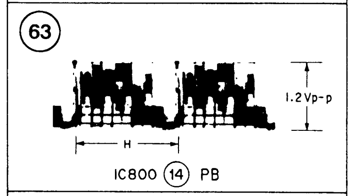
MC-Service

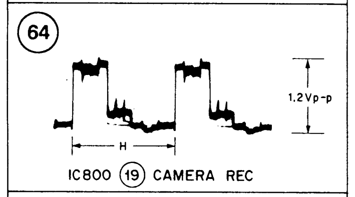
VC-177 BOARD (RR BLOCK)

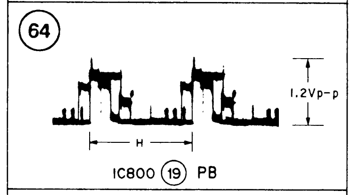


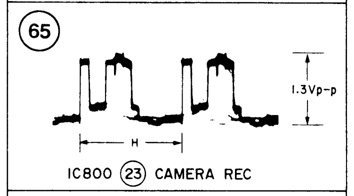
VC-177 BOARD (PY BLOCK)

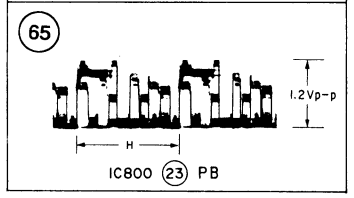








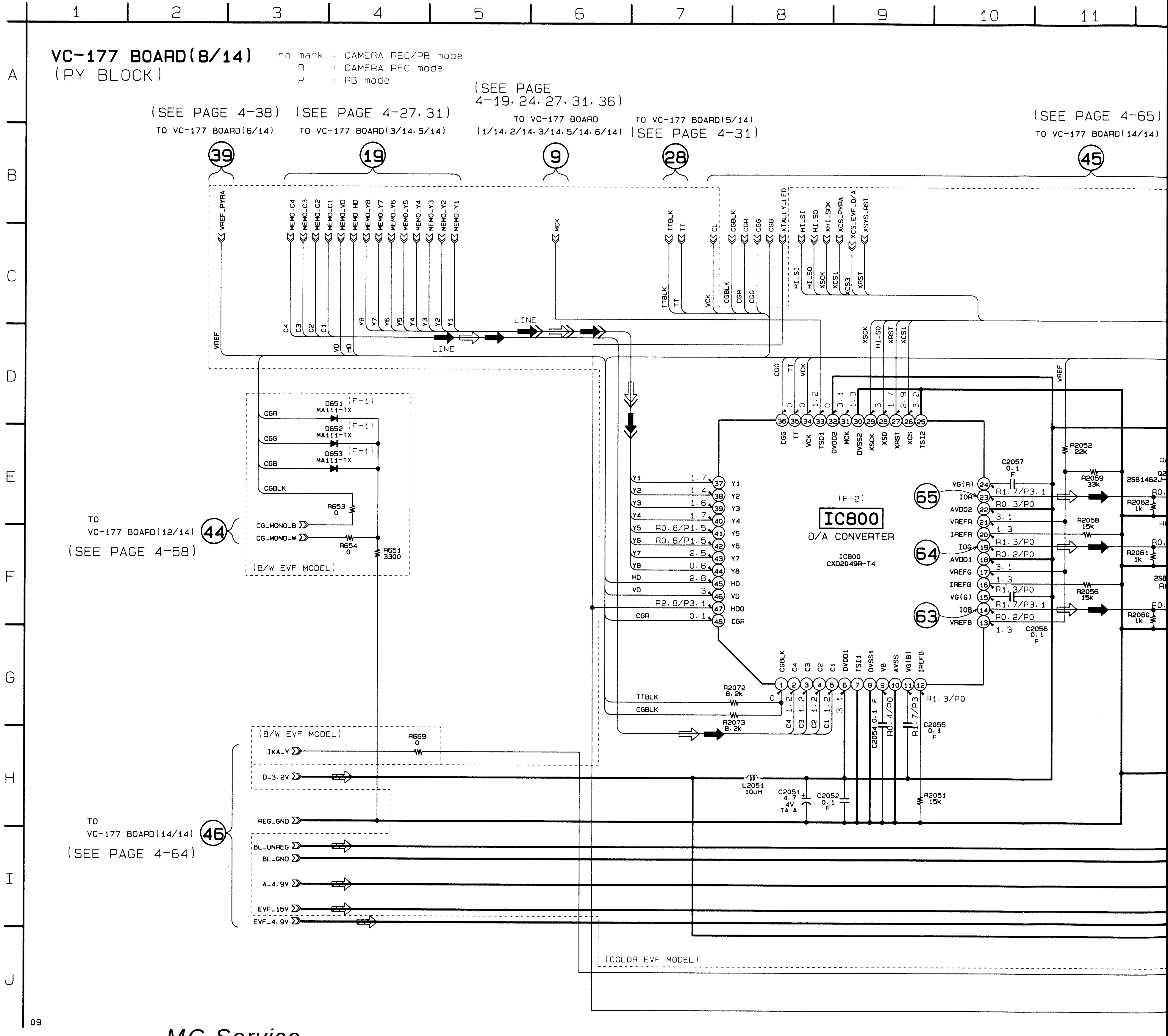




VC-177 (VIDEO PROCESS (2)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

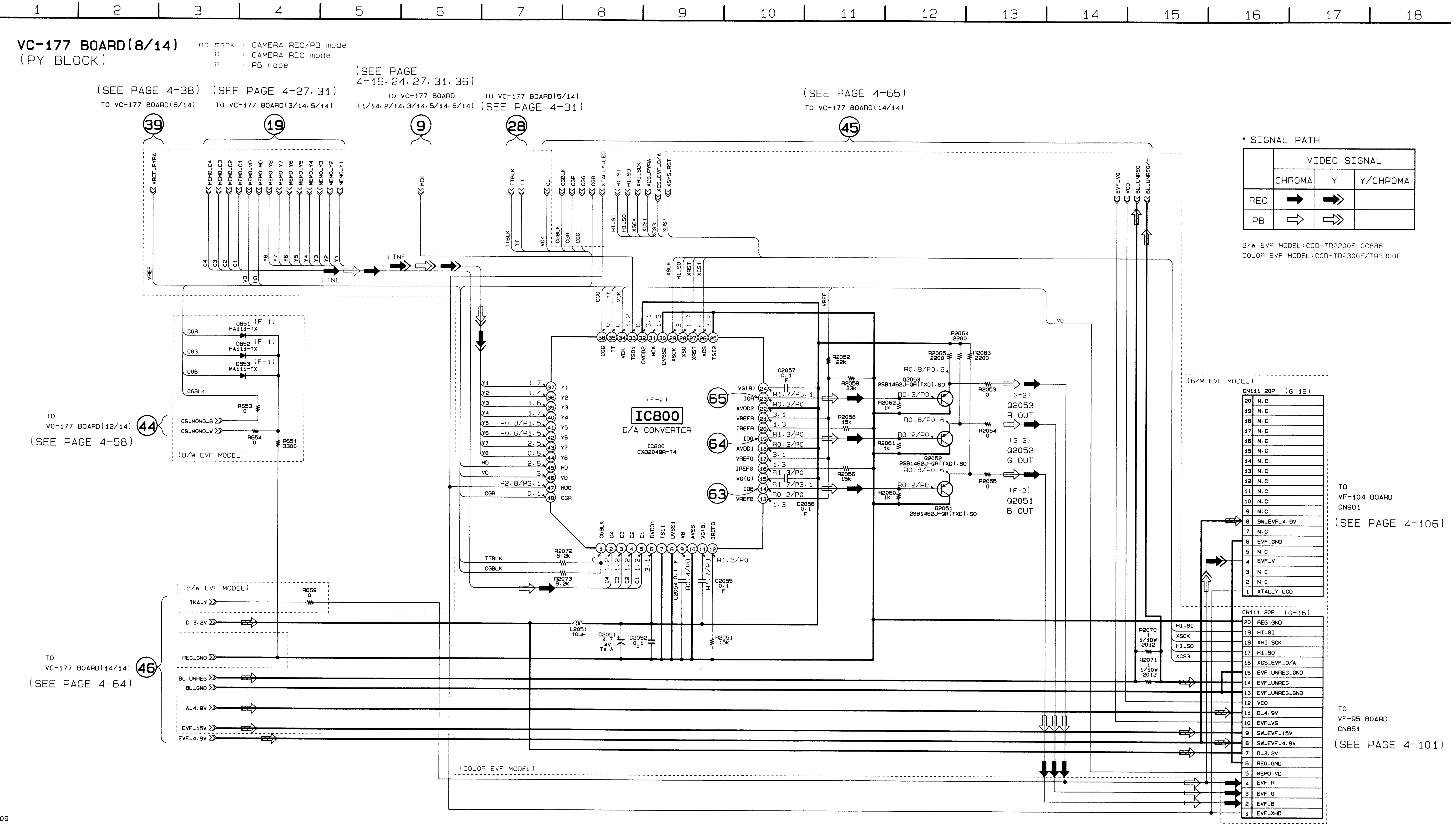
- Refer to page 4–13 for Printed Wiring Board.


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
VC-177 BOARD(8/14)
(PY BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
(SEE PAGE 4-38)
TO VC-177 BOARD(6/14)
(SEE PAGE 4-27, 31)
TO VC-177 BOARD(3/14, 5/14)
(SEE PAGE 4-19, 24, 27, 31, 36)
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14)
TO VC-177 BOARD(5/14)
(SEE PAGE 4-31)
(SEE PAGE 4-65)
TO VC-177 BOARD(14/14)
39
19
9
28
45
VREF_PYRA
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
MEMO_VD
MEMO_HD
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
MCK
TTBLK
TT
CL
CGBLK
CGR
CGG
CGB
XTALLY_LED
HI_SI
HI_SO
XHI_SCK
XCS_PYRA
XCS_EVF_D/A
XSYS_RST
LINE
D651 (F-1) MA111-TX
D652 (F-1) MA111-TX
D653 (F-1) MA111-TX
R653 0
R654 0
R651 3300
CG_MONO_B
CG_MONO_W
(B/W EVF MODEL)
TO VC-177 BOARD(12/14)
(SEE PAGE 4-58)
44
IC800 D/A CONVERTER
IC800 CXD2049R-T4
(F-2)
VG(R)
IOR
AVDD2
VREFR
IREFR
IOG
AVDD1
VREFG
IREFG
VG(G)
IOB
VREFB
R1.7/P3.1
R0.3/P0
R0.2/P0
R1.3/P0
65
64
63
C2057 0.1 F
R2052 22k
R2059 33k
R2058 15k
R2056 15k
R2062 1k
R2061 1k
R2060 1k
C2056 0.1 F
2SB1462J
R2072 8.2k
R2073 8.2k
C2054 0.1 F
C2055 0.1 F
R2051 15k
L2051 10uH
C2051 4.7 4V TA A
C2052 0.1 F
(B/W EVF MODEL)
R669 0
IKA_Y
D_3.2V
REG_GND
BL_UNREG
BL_GND
A_4.9V
EVF_15V
EVF_4.9V
TO VC-177 BOARD(14/14)
(SEE PAGE 4-64)
46
(COLOR EVF MODEL)
09

VC-177 (VIDEO PROCESS (2)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- **Refer to page 4–13 for Printed Wiring Board.**

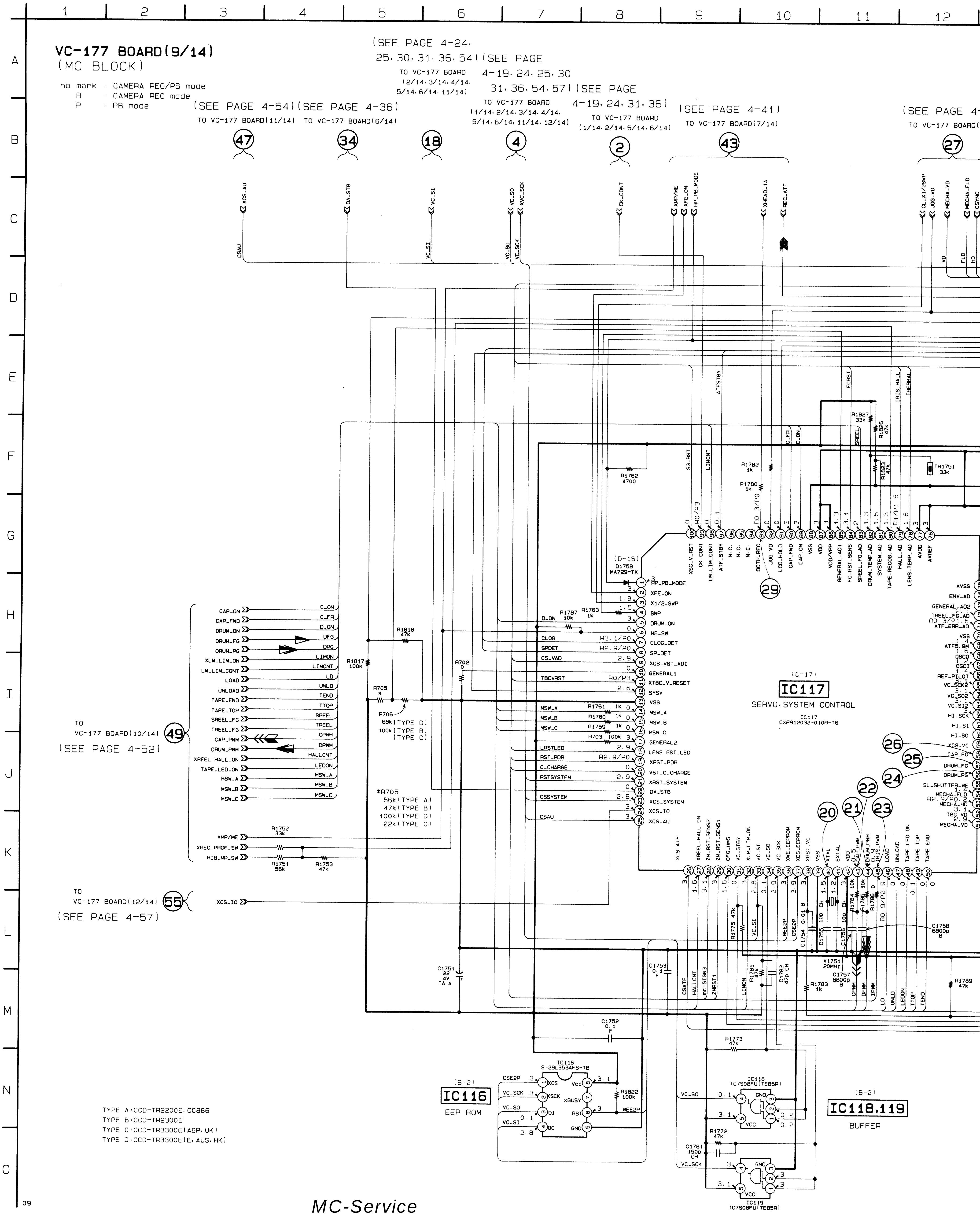

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
VC-177 BOARD(8/14)
(PY BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
(SEE PAGE 4-38)
TO VC-177 BOARD(6/14)
39
(SEE PAGE 4-27, 31)
TO VC-177 BOARD(3/14, 5/14)
19
(SEE PAGE 4-19, 24, 27, 31, 36)
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14)
9
TO VC-177 BOARD(5/14)
(SEE PAGE 4-31)
28
(SEE PAGE 4-65)
TO VC-177 BOARD(14/14)
45
• SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
REC
PB
B/W EVF MODEL:CCD-TR2200E, CC886
COLOR EVF MODEL:CCD-TR2300E/TR3300E
VREF_PYRA
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
MEMO_VD
MEMO_HD
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
MCK
TTBLK
TT
CL
CGBLK
CGR
CGG
CGB
XTALLY_LED
HI_SI
HI_SO
XHI_SCK
XCS_PYRA
XCS_EVF_D/A
XSYS_RST
EVF_VG
VCO
BL_UNREG
BL_UNREG/-
LINE
D651 (F-1) MA111-TX
D652 (F-1) MA111-TX
D653 (F-1) MA111-TX
CGR
CGG
CGB
CGBLK
R653 0
R654 0
R651 3300
CG_MONO_B
CG_MONO_W
(B/W EVF MODEL)
TO VC-177 BOARD(12/14)
44
(SEE PAGE 4-58)
IC800
(F-2)
D/A CONVERTER
IC800 CXD2049R-T4
65
64
63
VG(R)
IOR
AVDD2
VREFR
IREFR
IOG
AVDD1
VREFG
IREFG
VG(G)
IOB
VREFB
Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y8 HD VD HDO CGR
TTBLK
CGBLK
R2072 8.2k
R2073 8.2k
C2057 0.1 F
C2056 0.1 F
C2055 0.1 F
C2054 0.1 F
R2052 22k
R2059 33k
R2058 15k
R2056 15k
R2062 1k
R2061 1k
R2060 1k
R2064 2200
R2065 2200
R2063 2200
R2053 0
R2054 0
R2055 0
Q2053 2SB1462J-QR(TXD).SO
Q2052 2SB1462J-QR(TXD).SO
Q2051 2SB1462J-QR(TXD).SO
(G-2) Q2053 R OUT
(G-2) Q2052 G OUT
(F-2) Q2051 B OUT
VD
VREF
(B/W EVF MODEL)
CN111 20P (G-16)
20 N.C
19 N.C
18 N.C
17 N.C
16 N.C
15 N.C
14 N.C
13 N.C
12 N.C
11 N.C
10 N.C
9 N.C
8 SW_EVF_4.9V
7 N.C
6 EVF_GND
5 N.C
4 EVF_V
3 N.C
2 N.C
1 XTALLY_LCD
TO VF-104 BOARD CN901
(SEE PAGE 4-106)
CN111 20P (G-16)
20 REG_GND
19 HI_SI
18 XHI_SCK
17 HI_SO
16 XCS_EVF_D/A
15 EVF_UNREG_GND
14 EVF_UNREG
13 EVF_UNREG_GND
12 VCO
11 D_4.9V
10 EVF_VG
9 SW_EVF_15V
8 SW_EVF_4.9V
7 D_3.2V
6 REG_GND
5 MEMO_VD
4 EVF_R
3 EVF_G
2 EVF_B
1 EVF_XHD
TO VF-95 BOARD CN851
(SEE PAGE 4-101)
R2070 1 1/10W 2012
R2071 1 1/10W 2012
HI_SI
XSCK
HI_SO
XCS3
(B/W EVF MODEL)
R669 0
IKA_Y
D_3.2V
REG_GND
BL_UNREG
BL_GND
A_4.9V
EVF_15V
EVF_4.9V
L2051 10uH
C2051 4.7 4V TA A
C2052 0.1 F
R2051 15k
TO VC-177 BOARD(14/14)
46
(SEE PAGE 4-64)
(COLOR EVF MODEL)

09

VC-177 (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM

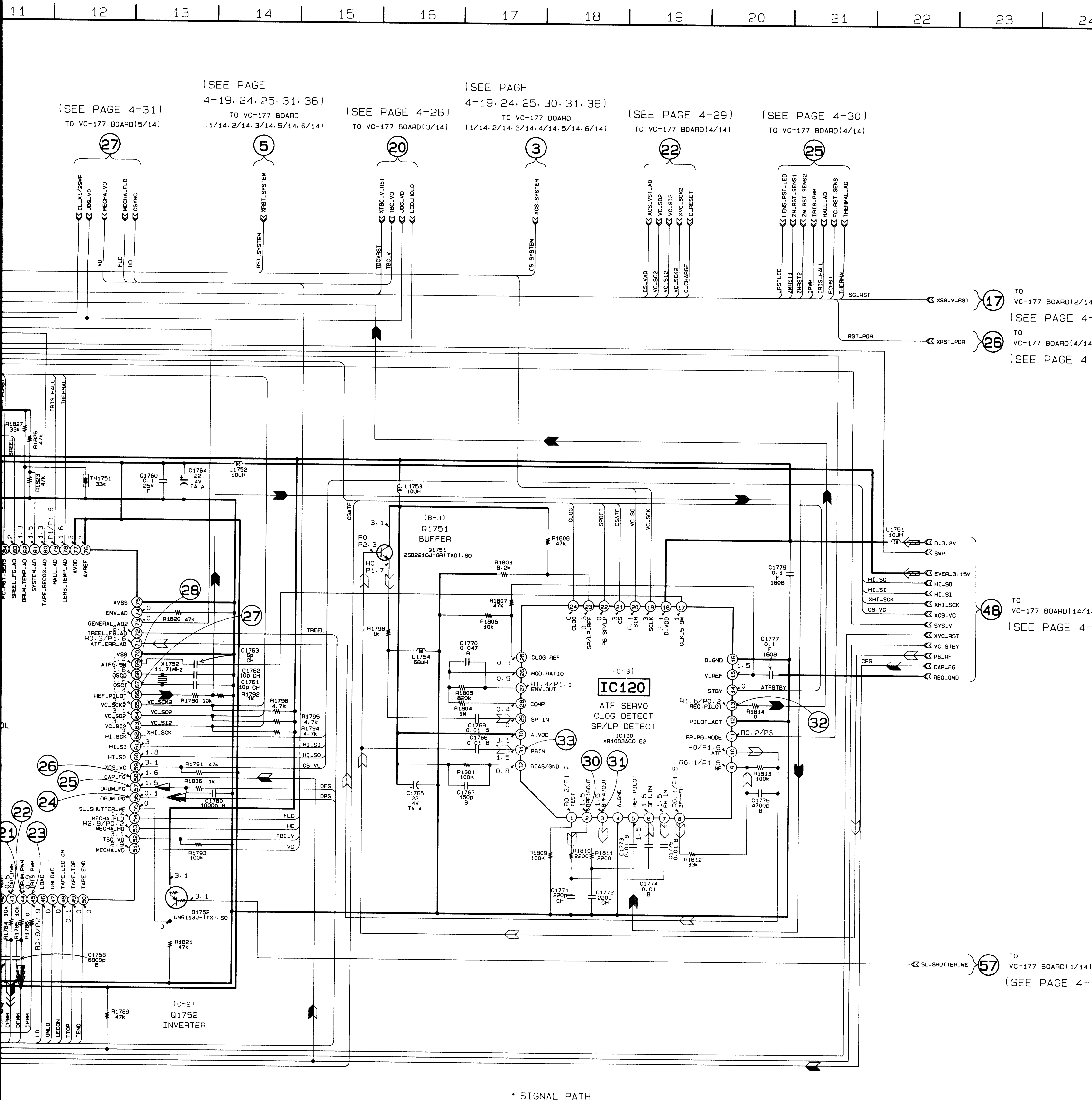
— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4-13 for Printed Wiring Board.



1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I J K L M N O
VC-177 BOARD(9/14)
(MC BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
(SEE PAGE 4-54) TO VC-177 BOARD(11/14)
(SEE PAGE 4-36) TO VC-177 BOARD(6/14)
(SEE PAGE 4-24, 25, 30, 31, 36, 54) TO VC-177 BOARD (2/14, 3/14, 4/14, 5/14, 6/14, 11/14)
(SEE PAGE 4-19, 24, 25, 30, 31, 36, 54, 57) TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 6/14, 11/14, 12/14)
(SEE PAGE 4-19, 24, 31, 36) TO VC-177 BOARD (1/14, 2/14, 5/14, 6/14)
(SEE PAGE 4-41) TO VC-177 BOARD(7/14)
(SEE PAGE 4-
TO VC-177 BOARD(
47
34
18
4
2
43
27
XCS_AU
DA_STB
VC_SI
VC_SO
XVC_SCK
CK_CONT
XMP/ME
XFE_ON
RP_PB_MODE
XHEAD_1A
REC_ATF
CL_X1/2SWP
JOG_VD
MECHA_VD
MECHA_FLD
CSYNC
VD
FLD
HD
ATFSTBY
FCRST
IRIS_HALL
THERMAL
R1827 33k
R1826 47k
SREEL
TH1751 33k
R1823 47k
C_FR
C_ON
SG_RST
LIMCNT
R1782 1k
R1780 1k
R1762 4700
(D-16) D1758 MA729-TX
XSG_V_RST
CK_CONT
LM_LIM_CONT
ATF_STBY
N.C.
BOTH_REC
JOG_VD
LCD_HOLD
CAP_FWD
CAP_ON
VSS
VDD
VDD/VPP
GENERAL_AD1
FC_RST_SENS
SREEL_FG_AD
DRUM_TEMP_AD
SYSTEM_AD
TAPE_RECOG_AD
HALL_AD
LENS_TEMP_AD
AVDD
AVREF
R0/P3
R0.3/P0
R1/P1 5
29
RP_PB_MODE
XFE_ON
X1/2_SWP
SWP
DRUM_ON
ME_SW
CLOG_DET
SP_DET
XCS_VST_ADI
GENERAL1
XTBC_V_RESET
SYSV
VSS
MSW_A
MSW_B
MSW_C
GENERAL2
LENS_RST_LED
XRST_POR
VST_C_CHARGE
XRST_SYSTEM
DA_STB
XCS_SYSTEM
XCS_IO
XCS_AU
R1787 10k
R1763 1k
D_ON
CLOG
SPDET
CS_VAD
TBCVRST
MSW_A
MSW_B
MSW_C
LRSTLED
RST_POR
C_CHARGE
RSTSYSTEM
CSSYSTEM
CSAU
R1761 1k
R1760 1k
R1759 1k
R703 100k
R3.1/P0
R2.9/P0
R2.9/P0
IC-17
IC117
SERVO, SYSTEM CONTROL
IC117 CXP912032-010R-T6
AVSS
ENV_AD
GENERAL_AD2
TREEL_FG_AD
ATF_ERR_AD
VSS
ATF5.9M
OSCO
OSCI
REF_PILOT
VC_SCK2
VC_SO2
VC_SI2
HI_SCK
HI_SI
HI_SO
XCS_VC
CAP_FG
DRUM_FG
DRUM_PG
SL_SHUTTER_WE
MECHA_FLD
MECHA_HD
TBC_VD
MECHA_VD
26
25
24
22
21
23
20
XCS ATF
XREEL_HALL_ON
ZM_RST_SENS2
ZM_RST_SENS1
CFG_HMS
VC_STBY
XLM_LIM_ON
VC_SI
VC_SO
VC_SCK
XWE_EEPROM
XCS_EEPROM
XRST_VC
VSS
XTAL
EXTAL
VDD
CAP_PWM
DRUM_PWM
RIS_PWM
LOAD
UNLOAD
LED_ON
TAPE_TOP
TAPE_END
R1775 47k
WEE2P
CSE2P
C1754 0.01 B
C1755 10p CH
C1756 10p CH
R1784 10k
R1785 10k
R1786 0
X1751 20MHz
C1757 6800p B
C1758 6800p B
R1783 1k
R1789 47k
C1753 0.1 F
CSATF
HALLCNT
MC-SIGN3
ZMRST1
LIMON
R1781 47k
C1782 47p CH
CPWM
DPWM
IPWM
LD
UNLD
LEDON
TTOP
TEND
CAP_ON
CAP_FWD
DRUM_ON
DRUM_FG
DRUM_PG
XLM_LIM_ON
LM_LIM_CONT
LOAD
UNLOAD
TAPE_END
TAPE_TOP
SREEL_FG
TREEL_FG
CAP_PWM
DRUM_PWM
XREEL_HALL_ON
TAPE_LED_ON
MSW_A
MSW_B
MSW_C
C_ON
C_FR
D_ON
DFG
DPG
LIMON
LIMCNT
LD
UNLD
TEND
TTOP
SREEL
TREEL
CPWM
DPWM
HALLCNT
LEDON
MSW_A
MSW_B
MSW_C
R1818 47k
R1817 100K
R702 0
R705 *
R706 68k(TYPE D) 100k(TYPE B) (TYPE C)
*R705 56k(TYPE A) 47k(TYPE B) 100k(TYPE D) 22k(TYPE C)
TO VC-177 BOARD(10/14)
49
(SEE PAGE 4-52)
XMP/ME
XREC_PROF_SW
HI8_MP_SW
R1752 33k
R1751 56k
R1753 47k
TO VC-177 BOARD(12/14)
55
(SEE PAGE 4-57)
XCS_IO
C1751 22 4V TA A
C1752 0.1 F
IC116 S-29L353AFS-TB
CSE2P
VC_SCK
VC_SO
VC_SI
XCS
XSCK
DI
DO
VCC
XBUSY
RST
GND
R1822 100k
WEE2P
(B-2)
IC116
EEP ROM
R1773 47k
IC118 TC7S08FU(TE85R)
VC_SO
GND
VCC
R1772 47k
C1781 150p CH
VC_SCK
IC119 TC7S08FU(TE85R)
(B-2)
IC118,119
BUFFER
09

TYPE A:CCD-TR2200E, CC886
TYPE B:CCD-TR2300E
TYPE C:CCD-TR3300E(AEP, UK)
TYPE D:CCD-TR3300E(E, AUS, HK)


11
12
13
14
15
16
17
18
19
20
21
22
23
(SEE PAGE 4-31)
TO VC-177 BOARD(5/14)
27
CL_X1/2SWP
JOG_VD
MECHA_VD
MECHA_FLD
CSYNC
(SEE PAGE 4-19, 24, 25, 31, 36)
TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14)
5
XRST_SYSTEM
(SEE PAGE 4-26)
TO VC-177 BOARD(3/14)
20
XTBC_V_RST
TBC_VD
JOG_VD
LCD_HOLD
(SEE PAGE 4-19, 24, 25, 30, 31, 36)
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 6/14)
3
XCS_SYSTEM
(SEE PAGE 4-29)
TO VC-177 BOARD(4/14)
22
XCS_VST_AD
VC_SO2
VC_SI2
XVC_SCK2
C_RESET
(SEE PAGE 4-30)
TO VC-177 BOARD(4/14)
25
LENS_RST_LED
ZM_RST_SENS1
ZM_RST_SENS2
IRIS_PWM
HALL_AD
FC_RST_SENS
THERMAL_AD
XSG_V_RST
17
TO VC-177 BOARD(2/14
(SEE PAGE 4-
XRST_POR
26
TO VC-177 BOARD(4/14
(SEE PAGE 4-
D_3.2V
SWP
EVER_3.15V
HI_SO
HI_SI
XHI_SCK
XCS_VC
SYS_V
XVC_RST
VC_STBY
PB_RF
CAP_FG
REG_GND
48
TO VC-177 BOARD(14/1
(SEE PAGE 4-
SL_SHUTTER_WE
57
TO VC-177 BOARD(1/14)
(SEE PAGE 4-
(B-3)
Q1751
BUFFER
Q1751 2SD2216J-QR(TXD).SO
(C-3)
IC120
ATF SERVO
CLOG DETECT
SP/LP DETECT
IC120 XR1083ACQ-E2
CLOG_REF
MOD_RATIO
ENV_OUT
COMP
SP_IN
A_VDD
PBIN
BIAS/GND
D_GND
V_REF
STBY
REC_PILOT
PILOT_ACT
RP_PB_MODE
ATF
NC
ATFSTBY
28
27
26
25
24
22
23
21
30
31
32
33
AVSS
ENV_AD
GENERAL_AD2
TREEL_FG_AD
ATF_ERR_AD
VSS
ATFS.9M
OSCO
OSCI
REF_PILOT
VC_SCK2
VC_SO2
VC_SI2
HI_SCK
HI_SI
HI_SO
XCS_VC
CAP_FG
DRUM_FG
DRUM_PG
SL_SHUTTER_WE
MECHA_FLD
MECHA_HD
TBC_VD
MECHA_VD
AVREF
AVDD
LENS_TEMP_AD
HALL_AD
TAPE_RECOG_AD
SYSTEM_AD
DRUM_TEMP_AD
SPEEL_FG_AD
X1752 11.71MHz
TH1751 33k
L1752 10uH
L1753 10UH
L1754 68uH
L1751 10UH
(C-2)
Q1752
INVERTER
Q1752 UN9113J-(TX).SO
CPWM
DPWM
LD
UNLD
LEDON
TTOP
TEND
TREEL
DFG
DPG
FLD
HD
TBC_V
VD
CFG
SG_RST
RST_POR
CSATF

(B-2)

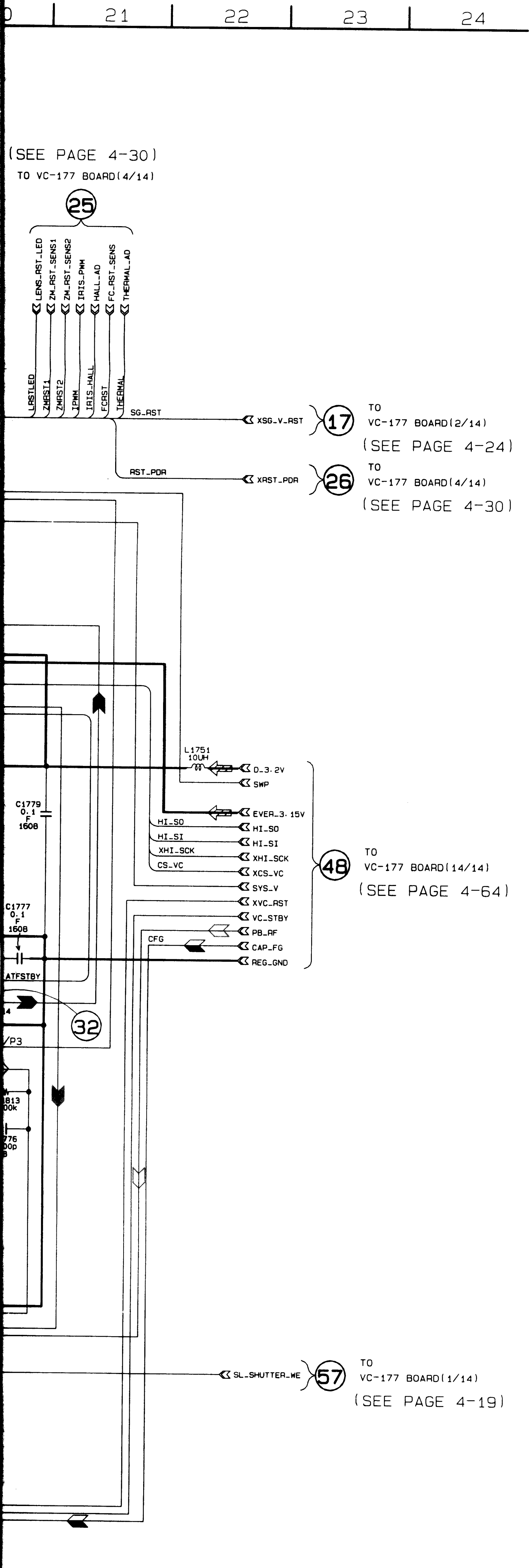
118.119

BUFFER

• SIGNAL PATH

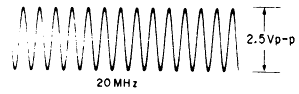
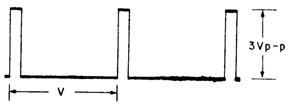
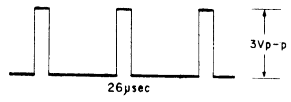
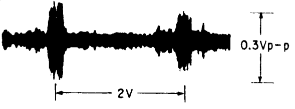
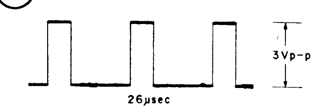
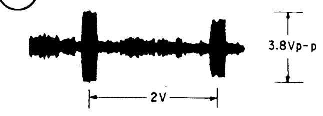
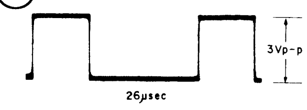
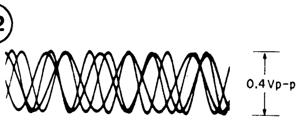
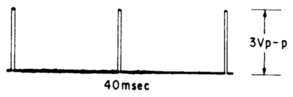
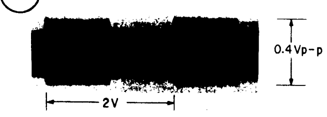
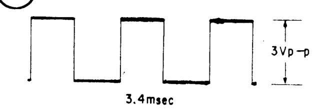
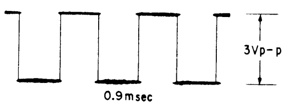
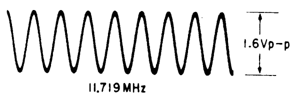
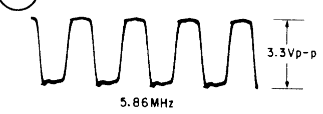
	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		➡	
Drum servo(speed and phase)		➡	
Capstan speed servo		➤	
Capstan servo(speed and phase)		➤»	
Ref. signal	➤		▷

MC-Service


21
22
23
24
(SEE PAGE 4-30)
TO VC-177 BOARD(4/14)
25
LENS_RST_LED
ZM_RST_SENS1
ZM_RST_SENS2
IRIS_PWM
HALL_AD
FC_RST_SENS
THERMAL_AD
LRSTLED
ZMRST1
ZMRST2
IPWM
IRIS_HALL
FCRST
THERMAL
SG_RST
XSG_V_RST
17
TO
VC-177 BOARD(2/14)
(SEE PAGE 4-24)
RST_PDR
XRST_PDR
26
TO
VC-177 BOARD(4/14)
(SEE PAGE 4-30)
L1751
10UH
D_3.2V
SWP
C1779
0.1
F
1608
EVER_3.15V
HI_SO
HI_SI
XHI_SCK
CS_VC
HI_SO
HI_SI
XHI_SCK
XCS_VC
SYS_V
XVC_RST
VC_STBY
PB_RF
CFG
CAP_FG
REG_GND
48
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-64)
C1777
0.1
F
1608
ATFSTBY
32
/P3
813
00k
776
00p
SL_SHUTTER_WE
57
TO
VC-177 BOARD(1/14)
(SEE PAGE 4-19)

REC/PB	PB
▷	
➩	
⮞	
➢	
➢›››	
	▷

VC-177 BOARD (MC BLOCK)

(20)  IC117 (40) CAMERA REC/PB	(29)  IC117 (93) CAMERA REC
(21)  IC117 (43) CAMERA REC/PB	(30)  IC120 (2) PB
(22)  IC117 (44) CAMERA REC/PB	(31)  IC120 (3) PB
(23)  IC117 (45) CAMERA REC	(32)  IC120 (13) CAMERA REC H:5μsec V:0.2Vdiv
(24)  IC117 (56) CAMERA REC/PB	(33)  IC120 (31) PB
(25)  IC117 (57) CAMERA REC/PB	
(26)  IC117 (58) CAMERA REC/PB	
(27)  IC117 (67) CAMERA REC/PB	
(28)  IC117 (69) CAMERA REC/PB	

FP-249 (TAPE SENSOR) FLEXIBLE BOARD

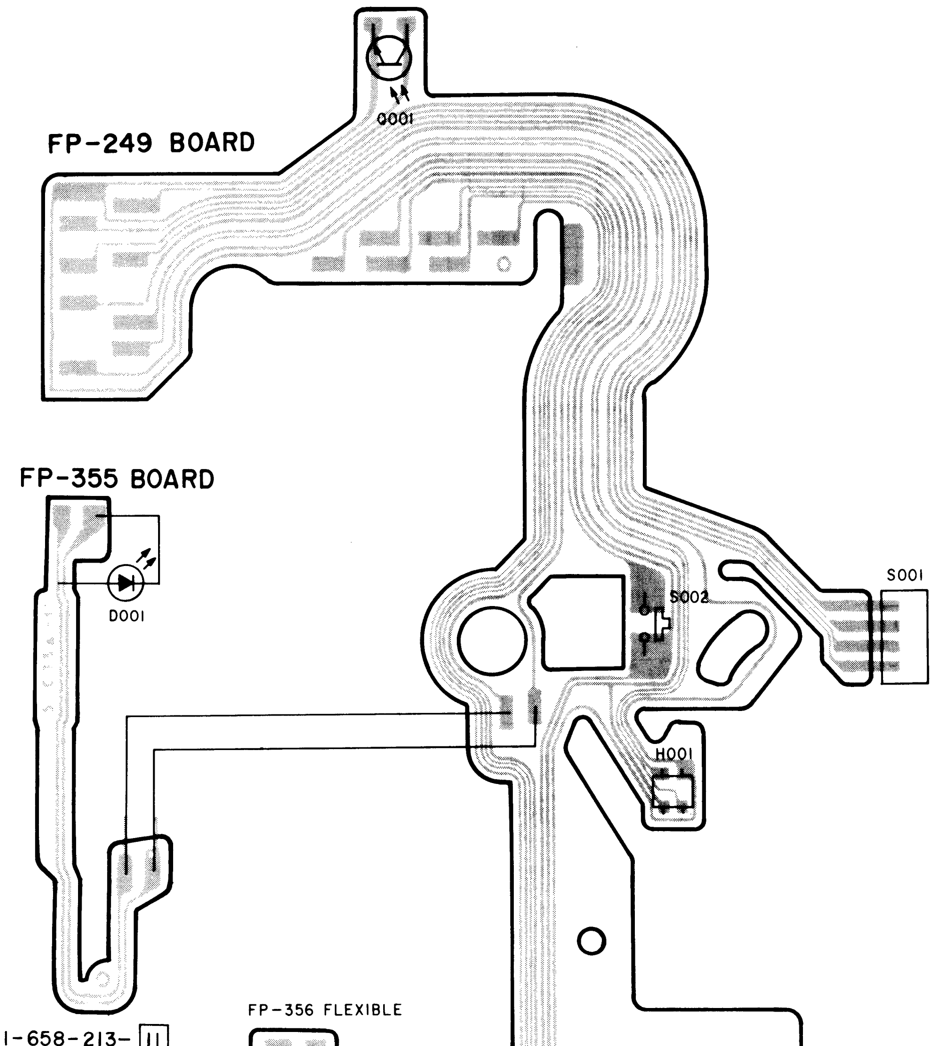
— Ref No. FP-249 FLEXIBLE BOARD: 8,000 series —

FP-355 (TAPE LED) FLEXIBLE BOARD

— Ref No. FP-355 FLEXIBLE BOARD: 8,000 series —

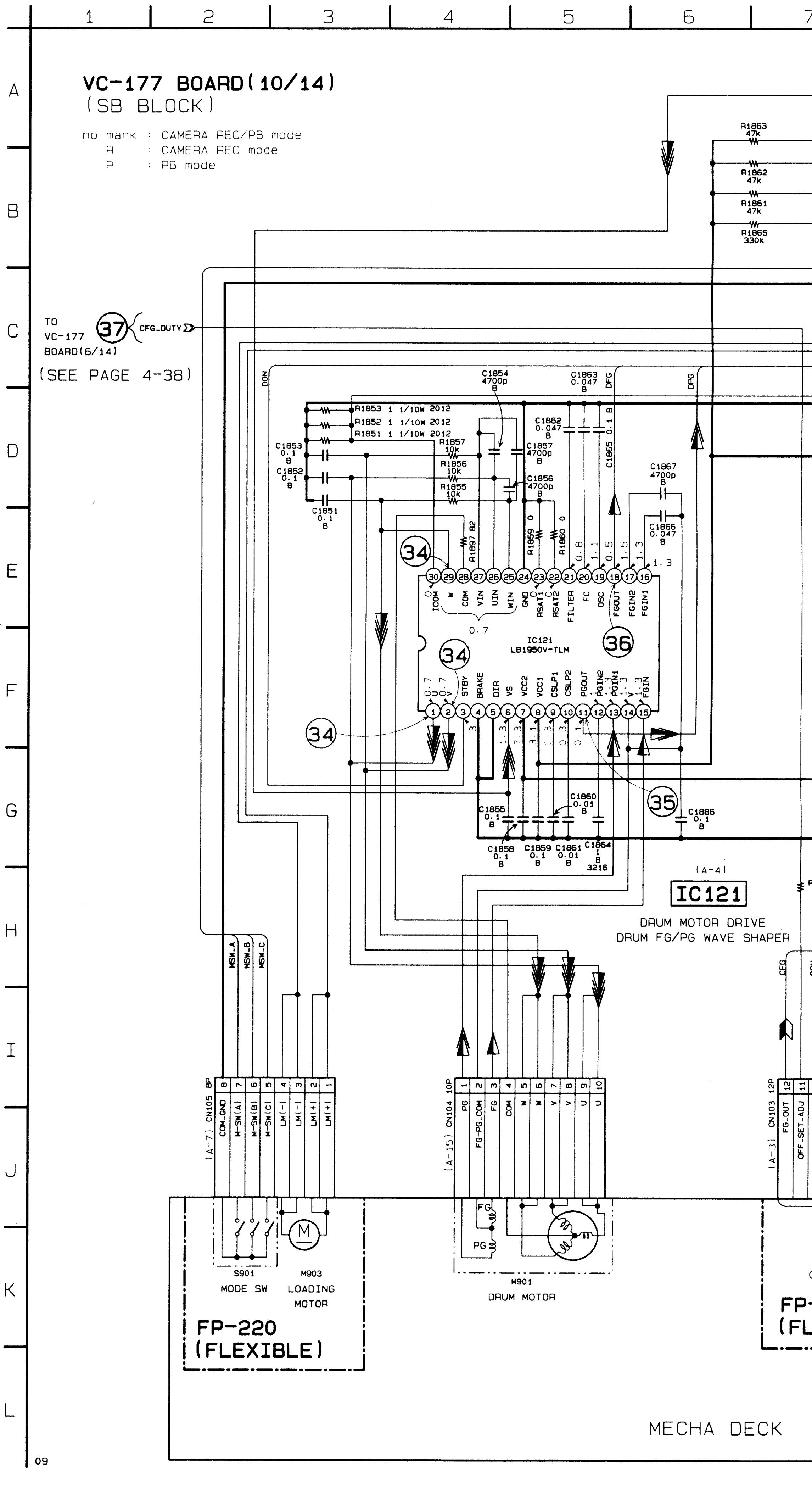
FP-356 (TAPE END SENSOR) FLEXIBLE BOARD

— Ref No. FP-356 FLEXIBLE BOARD: 8,000 series —


FP-249 BOARD
Q001
FP-355 BOARD
D001
S001
S002
H001
FP-356 FLEXIBLE
Q002
1-658-213-11
1-658-214-11
H002
1-657-787-13

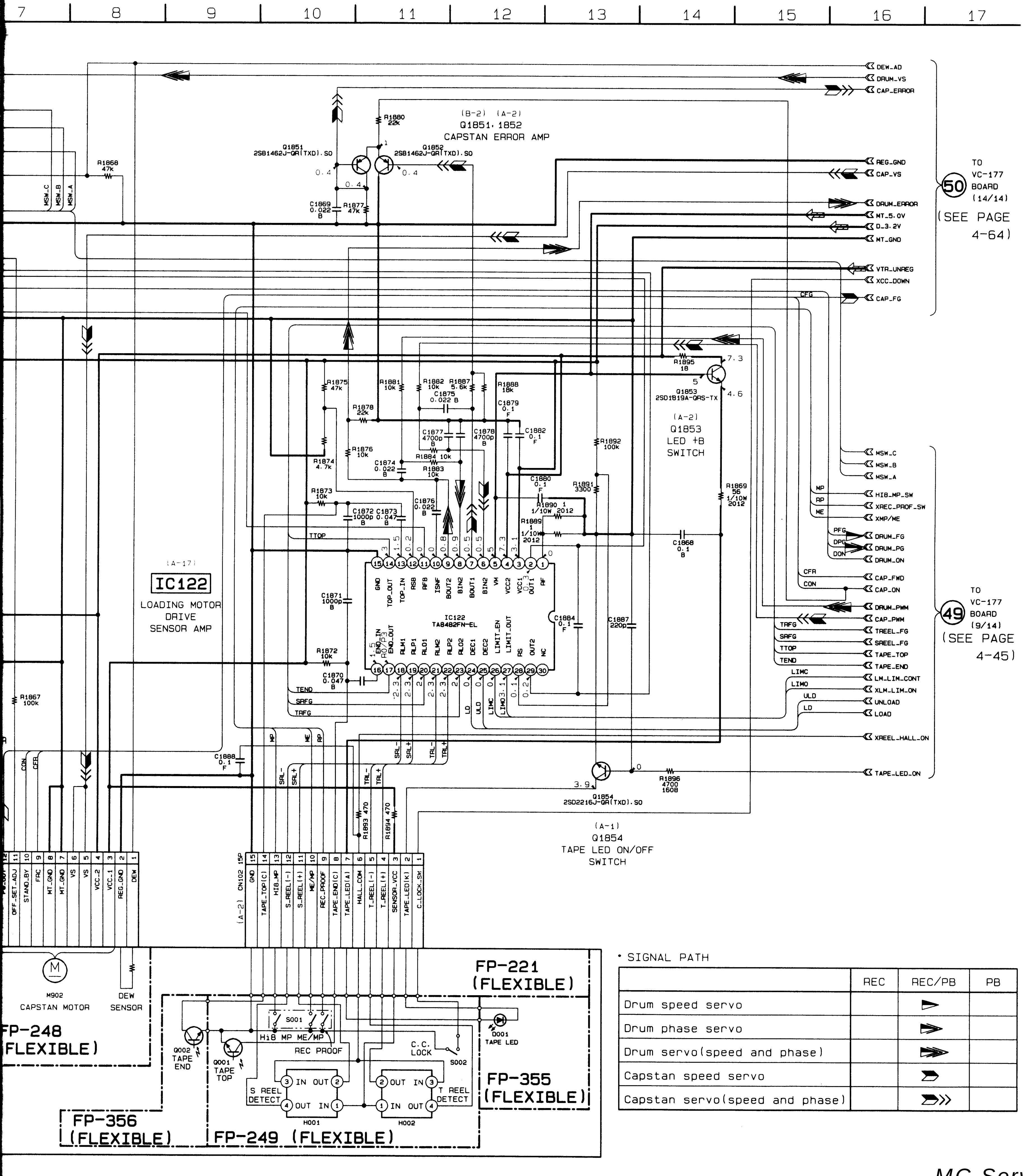
VC-177 (SERVO), FP-249 (TAPE SENSOR), FP-355 (TAPE LED), FP-356 (TAPE END SENSOR

— Ref No. VC-177 BOARD: 10,000 series, FP-249, FP-355 and FP-356 FLEXIBLE BOARDS: 8,000 series —

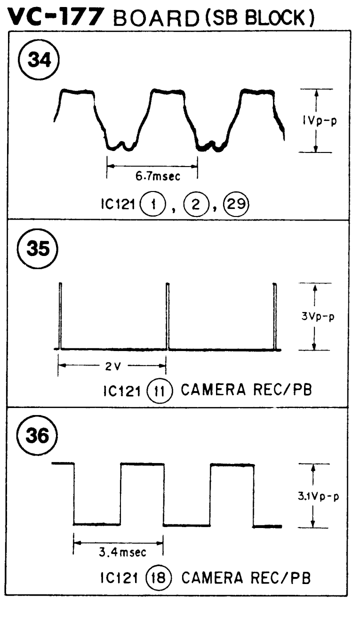

VC-177 BOARD (10/14)
(SB BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
TO VC-177 BOARD (6/14)
(SEE PAGE 4-38)
37
CFG_DUTY
34
35
36
IC121
LB1950V-TLM
(A-4)
IC121
DRUM MOTOR DRIVE
DRUM FG/PG WAVE SHAPER
R1863 47k
R1862 47k
R1861 47k
R1865 330k
C1854 4700p
C1863 0.047
C1865 0.1
C1867 4700p
C1866 0.047
C1886 0.1
(A-7) CN105 8P
COM_GND
M-SW(A)
M-SW(B)
M-SW(C)
LM(-)
LM(+)
MSW_A
MSW_B
MSW_C
(A-15) CN104 10P
PG
FG-PG_COM
FG
COM
W
V
U
(A-3) CN103 12P
FG_OUT
OFF_SET_ADJ
S901
MODE SW
M903
LOADING MOTOR
M901
DRUM MOTOR
FP-220
(FLEXIBLE)
MECHA DECK
1 2 3 4 5 6 7
A B C D E F G H I J K L
09

R) SCHEMATIC DIAGRAMS

- Refer to page 4-13 for Printed Wiring Board.


7
8
9
10
11
12
13
14
15
16
17
DEW_AD
DRUM_VS
CAP_ERROR
(B-2) (A-2)
Q1851, 1852
CAPSTAN ERROR AMP
R1880 22k
Q1851 2SB1462J-QR(TXD).SO
Q1852 2SB1462J-QR(TXD).SO
R1868 47k
C1869 0.022 B
R1877 47k
REG_GND
CAP_VS
DRUM_ERROR
MT_5.0V
D_3.2V
MT_GND
TO VC-177 BOARD (14/14) (SEE PAGE 4-64)
VTR_UNREG
XCC_DOWN
CAP_FG
CFG
R1895 18
Q1853 2SD1819A-QRS-TX
(A-2) Q1853 LED +B SWITCH
R1875 47k
R1881 10k
R1882 10k
R1887 5.6k
C1875 0.022 B
R1888 18k
C1879 0.1 F
R1878 22k
C1877 4700p B
C1878 4700p B
C1882 0.1 F
R1892 100k
R1876 10k
R1874 4.7k
C1874 0.022 B
R1884 10k
R1883 10k
C1880 0.1 F
R1891 3300
R1869 56 1/10W 2012
R1873 10k
C1872 1000p B
C1873 0.047 B
C1876 0.022 B
R1890 1 1/10W 2012
R1889 1 1/10W 2012
C1868 0.1 B
TTOP
(A-17)
IC122
LOADING MOTOR DRIVE SENSOR AMP
C1871 1000p B
IC122 TA8482FN-EL
GND TOP_OUT TOP_IN RSB RFB ISNF BOUT2 BIN2 BOUT1 BIN1 VM VCC2 VCC1 OUT1 RF
END_IN END_OUT RLM1 RLP1 RLO1 RLM2 RLP2 RLO2 DEC1 DEC2 LIMIT_EN LIMIT_OUT RS OUT2 NC
C1884 0.1 F
C1887 220p
R1872 10k
C1870 0.047 B
TEND
SRFG
TRFG
R1867 100k
MSW_C
MSW_B
MSW_A
MP
RP
ME
HI8_MP_SW
XREC_PROOF_SW
XMP/ME
PFG DPG DON
DRUM_FG
DRUM_PG
DRUM_ON
CFR
CON
CAP_FWD
CAP_ON
DRUM_PWM
CAP_PWM
TREEL_FG
SREEL_FG
TAPE_TOP
TAPE_END
LM_LIM_CONT
XLM_LIM_ON
UNLOAD
LOAD
LIMC LIMO ULD LD
TO VC-177 BOARD (9/14) (SEE PAGE 4-45)
XREEL_HALL_ON
TAPE_LED_ON
C1888 0.1 F
CON CFR
SRL- SRL+ TRL- TRL+
R1893 470
R1894 470
R1896 4700 1608
Q1854 2SD2216J-QR(TXD).SO
(A-1) Q1854 TAPE LED ON/OFF SWITCH
OFF_SET_ADJ STAND_BY FRC MT_GND MT_GND VS VS VCC_2 VCC_1 REG_GND DEW
(A-2) CN102 15P
GND TAPE_TOP(C) HI8_MP S_REEL(-) S_REEL(+) ME/MP REC_PROOF TAPE_END(C) TAPE_LED(A) HALL_COM T_REEL(-) T_REEL(+) SENSOR_VCC TAPE_LED(K) C_LOCK_SW
M902 CAPSTAN MOTOR
DEW SENSOR
FP-248 (FLEXIBLE)
FP-221 (FLEXIBLE)
S001
HI8 MP ME/MP
REC PROOF
C.C. LOCK
S002
D001 TAPE LED
Q002 TAPE END
Q001 TAPE TOP
S REEL DETECT
T REEL DETECT
IN OUT
H001
H002
FP-355 (FLEXIBLE)
FP-356 (FLEXIBLE)
FP-249 (FLEXIBLE)

VC-177 BOARD (SB BLOCK)



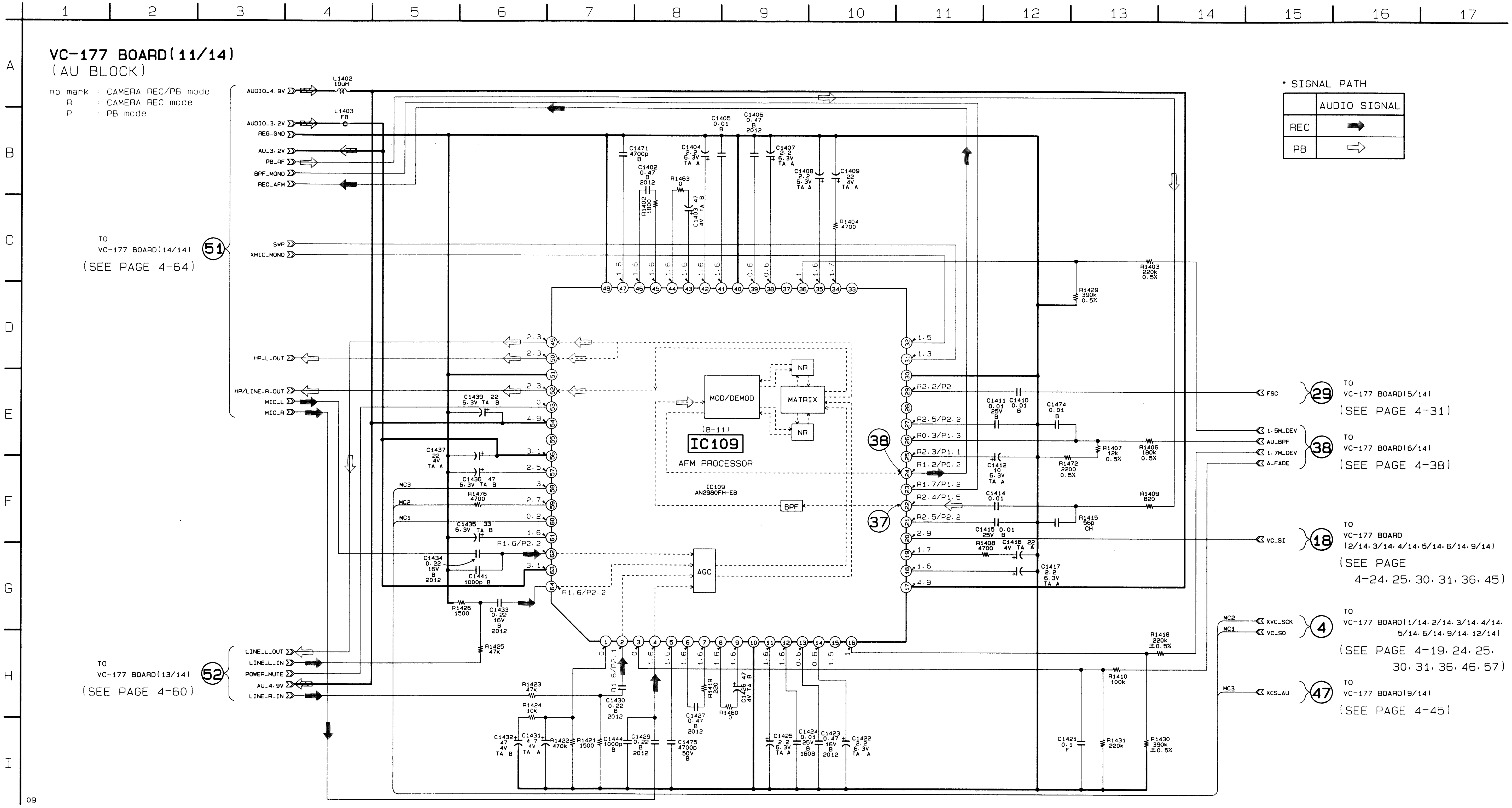
- SIGNAL PATH

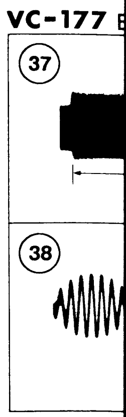
	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▶	
Drum servo(speed and phase)		▶▶	
Capstan speed servo		➢	
Capstan servo(speed and phase)		➢»	

VC-177 (AUDIO) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

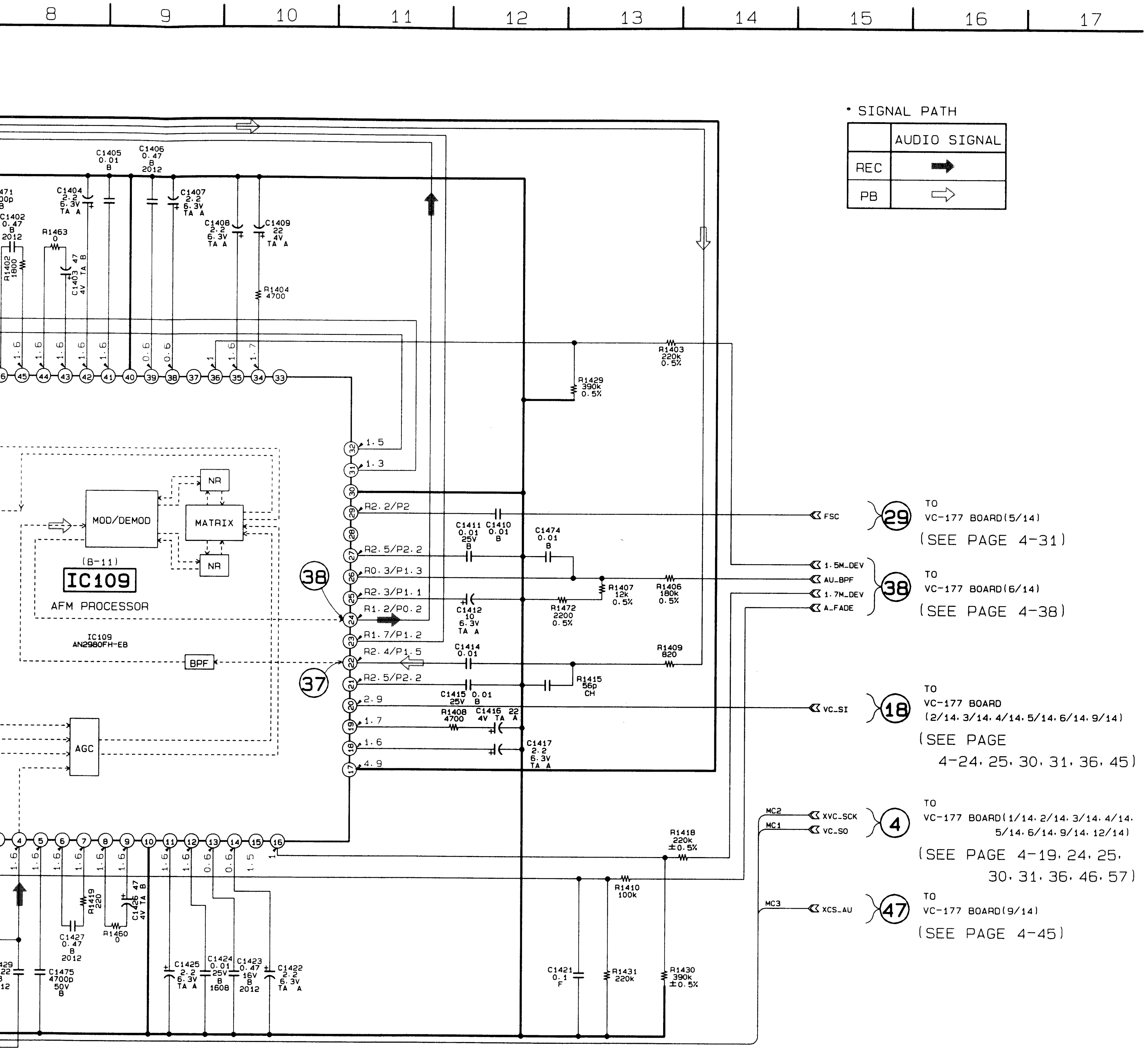
- Refer to page 4-13 for Printed Wiring Board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I
VC-177 BOARD(11/14)
(AU BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
• SIGNAL PATH
AUDIO SIGNAL
REC
PB
AUDIO_4.9V
AUDIO_3.2V
REG_GND
AU_3.2V
PB_RF
BPF_MONO
REC_AFM
SWP
XMIC_MONO
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-64)
(51)
HP_L_OUT
HP/LINE_R_OUT
MIC_L
MIC_R
LINE_L_OUT
LINE_L_IN
POWER_MUTE
AU_4.9V
LINE_R_IN
TO
VC-177 BOARD(13/14)
(SEE PAGE 4-60)
(52)
L1402 10uH
L1403 FB
C1471 4700p B
C1402 0.47 B 2012
R1402 1800
R1463 0
C1403 47 4V TA B
C1404 2.2 6.3V TA A
C1405 0.01 B
C1406 0.47 B 2012
C1407 2.2 6.3V TA A
C1408 2.2 6.3V TA A
C1409 22 4V TA A
R1404 4700
R1403 220k 0.5%
R1429 390k 0.5%
MOD/DEMOD
MATRIX
NR
NR
(B-11)
IC109
AFM PROCESSOR
IC109 AN2960FH-EB
BPF
AGC
C1439 22 6.3V TA B
C1437 22 4V TA A
C1436 47 6.3V TA B
R1476 4700
C1435 33 6.3V TA B
C1434 0.22 16V B 2012
C1441 1000p B
R1426 1500
C1433 0.22 16V B 2012
R1425 47k
MC1
MC2
MC3
R1.6/P2.2
R2.2/P2
R2.5/P2.2
R0.3/P1.3
R2.3/P1.1
R1.2/P0.2
R1.7/P1.2
R2.4/P1.5
R2.5/P2.2
C1411 0.01 25V B
C1410 0.01 B
C1474 0.01 B
C1412 10 6.3V TA A
R1472 2200 0.5%
R1407 12k 0.5%
R1406 180k 0.5%
C1414 0.01
R1409 820
C1415 0.01 25V B
R1415 56p CH
R1408 4700
C1416 22 4V TA A
C1417 2.2 6.3V TA A
(38)
(37)
FSC
1.5M_DEV
AU_BPF
1.7M_DEV
A_FADE
VC_SI
XVC_SCK
VC_SO
XCS_AU
(29) TO VC-177 BOARD(5/14) (SEE PAGE 4-31)
(38) TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
(18) TO VC-177 BOARD (2/14, 3/14, 4/14, 5/14, 6/14, 9/14) (SEE PAGE 4-24, 25, 30, 31, 36, 45)
(4) TO VC-177 BOARD(1/14, 2/14, 3/14, 4/14, 5/14, 6/14, 9/14, 12/14) (SEE PAGE 4-19, 24, 25, 30, 31, 36, 46, 57)
(47) TO VC-177 BOARD(9/14) (SEE PAGE 4-45)
R1418 220k ±0.5%
R1410 100k
R1431 220k
R1430 390k ±0.5%
C1421 0.1 F
R1423 47k
R1424 10k
C1432 47 4V TA B
C1431 4.7 4V TA A
R1422 470k
R1421 1500
C1444 1000p B
C1430 0.22 B 2012
C1429 0.22 B 2012
C1475 4700p 50V B
C1427 0.47 B 2012
R1419 220
C1426 47 4V TA B
R1460 0
C1425 2.2 6.3V TA A
C1424 0.01 25V B 1608
C1423 0.47 16V B 2012
C1422 2.2 6.3V TA A
09

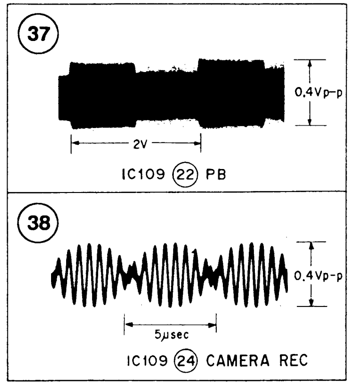


* SIGNAL PATH

	AUDIO SIGNAL
REC	➡
PB	⇨


8
9
10
11
12
13
14
15
16
17
MOD/DEMOD
MATRIX
NR
NR
(B-11)
IC109
AFM PROCESSOR
IC109
AN2980FH-EB
BPF
AGC
C1405 0.01 B
C1406 0.47 B 2012
C1404 2.2 6.3V TA A
C1407 2.2 6.3V TA A
C1402 0.47 B 2012
R1463 0
R1402 1800
C1403 47 4V TA B
C1408 2.2 6.3V TA A
C1409 22 4V TA A
R1404 4700
R1403 220k 0.5%
R1429 390k 0.5%
R2.2/P2
R2.5/P2.2
R0.3/P1.3
R2.3/P1.1
R1.2/P0.2
R1.7/P1.2
R2.4/P1.5
R2.5/P2.2
C1411 0.01 25V B
C1410 0.01 B
C1474 0.01 B
C1412 10 6.3V TA A
R1472 2200 0.5%
R1407 12k 0.5%
R1406 180k 0.5%
C1414 0.01
R1409 820
R1415 56p CH
C1415 0.01 25V B
R1408 4700
C1416 22 4V TA A
C1417 2.2 6.3V TA A
FSC
1.5M_DEV
AU_BPF
1.7M_DEV
A_FADE
VC_SI
XVC_SCK
VC_SO
XCS_AU
MC1
MC2
MC3
38
37
29
TO VC-177 BOARD(5/14)
(SEE PAGE 4-31)
38
TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)
18
TO VC-177 BOARD (2/14, 3/14, 4/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-24, 25, 30, 31, 36, 45)
4
TO VC-177 BOARD(1/14, 2/14, 3/14, 4/14, 5/14, 6/14, 9/14, 12/14)
(SEE PAGE 4-19, 24, 25, 30, 31, 36, 46, 57)
47
TO VC-177 BOARD(9/14)
(SEE PAGE 4-45)
R1418 220k ±0.5%
R1410 100k
R1419 220
R1460 0
C1426 47 4V TA B
C1427 0.47 B 2012
C1475 4700p 50V B
C1425 2.2 6.3V TA A
C1424 0.01 25V B 1608
C1423 0.47 16V B 2012
C1422 2.2 6.3V TA A
C1421 0.1 F
R1431 220k
R1430 390k ±0.5%

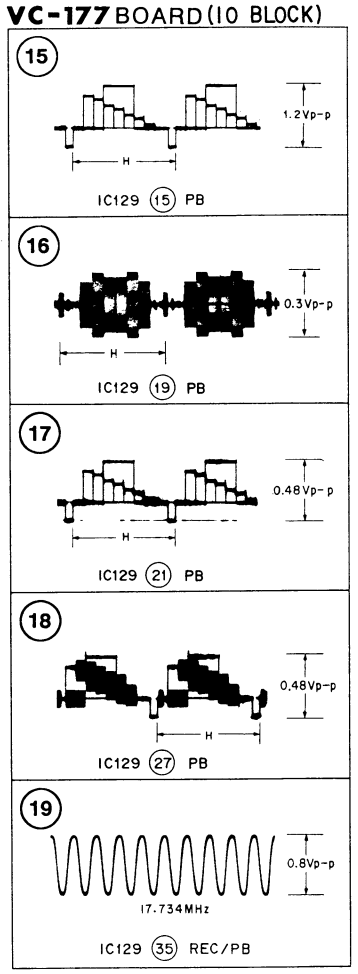
VC-177 BOARD (AU BLOCK)

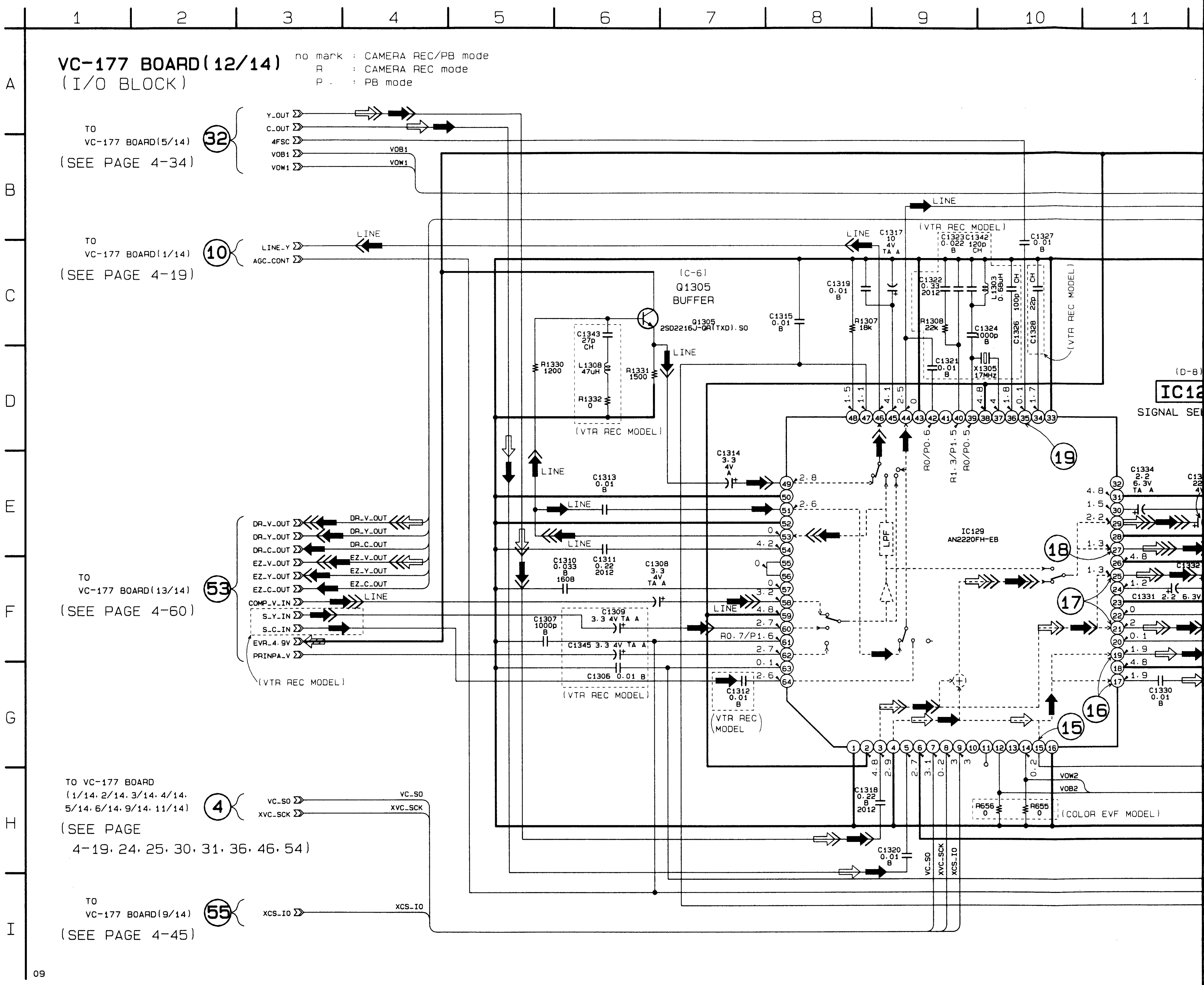


VC-177 (VIDEO IN/OUT (1)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4-13 for Printed Wiring Board.




1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I
VC-177 BOARD (12/14)
(I/O BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
TO VC-177 BOARD (5/14) (SEE PAGE 4-34)
32
Y_OUT
C_OUT
4FSC
VOB1
VOW1
TO VC-177 BOARD (1/14) (SEE PAGE 4-19)
10
LINE_Y
AGC_CONT
LINE
TO VC-177 BOARD (13/14) (SEE PAGE 4-60)
53
DR_V_OUT
DR_Y_OUT
DR_C_OUT
EZ_V_OUT
EZ_Y_OUT
EZ_C_OUT
COMP_V_IN
S_Y_IN
S_C_IN
EVR_4.9V
PRINPA_V
(VTR REC MODEL)
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 6/14, 9/14, 11/14) (SEE PAGE 4-19, 24, 25, 30, 31, 36, 46, 54)
4
VC_SO
XVC_SCK
TO VC-177 BOARD (9/14) (SEE PAGE 4-45)
55
XCS_IO
(C-6)
Q1305
BUFFER
Q1305
2SD2216J-QR(TXD).SO
C1343 27p CH
L1308 47uH
R1330 1200
R1331 1500
R1332 0
(VTR REC MODEL)
C1315 0.01 B
C1319 0.01 B
R1307 18K
C1317 10 4V TA A
(VTR REC MODEL)
C1322 0.33 2012
C1323 0.022 B
C1342 120p CH
L1303 0.68uH
R1308 22K
C1324 1000p B
C1321 0.01 B
X1305 17MHz
C1326 100p CH
C1328 22p CH
C1327 0.01 B
(VTR REC MODEL)
C1314 3.3 4V A
C1313 0.01 B
C1310 0.033 B 1608
C1311 0.22 2012
C1308 3.3 4V TA A
C1307 1000p B
C1309 3.3 4V TA A
C1345 3.3 4V TA A
C1306 0.01 B
(VTR REC MODEL)
C1312 0.01 B
(VTR REC MODEL)
LPF
IC129 AN2220FH-EB
R0/P0.6
R1.3/P1.5
R0/P0.5
R0.7/P1.6
C1318 0.22 B 2012
C1320 0.01 B
R656 0
R655 0
(COLOR EVF MODEL)
VOW2
VOB2
VC_SO
XVC_SCK
XCS_IO
(D-8)
IC12
SIGNAL SE
C1334 2.2 6.3V TA A
C1331 2.2 6.3V
C1330 0.01 B
15 16 17 18 19
09

MC-Service

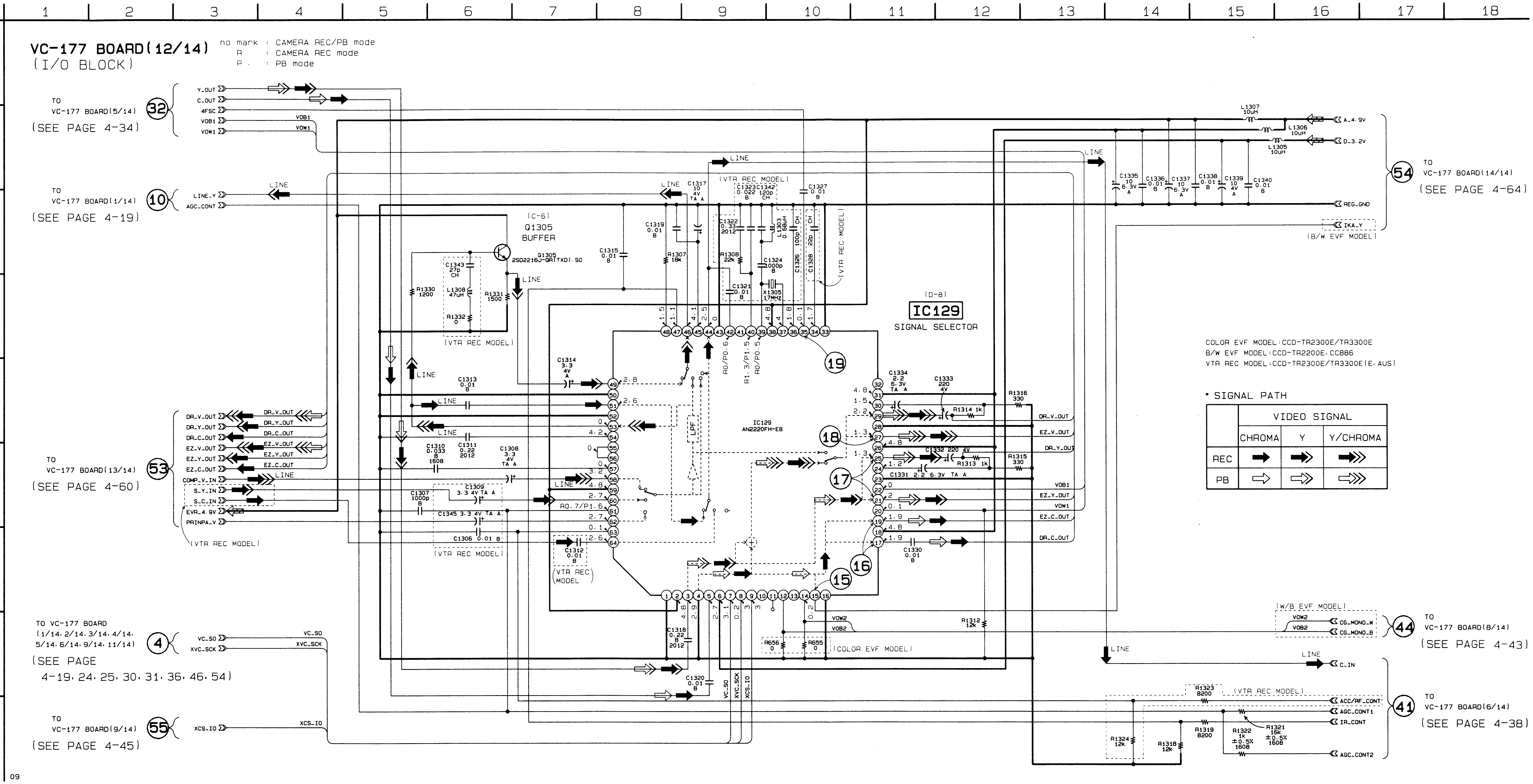
VC-177 (VIDEO IN/OUT (1)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.

VC-177 BOARD(12/14)
(I/O BLOCK)

no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode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15
16
17
18
TO VC-177 BOARD(5/14) (SEE PAGE 4-34)
32
Y_OUT
C_OUT
4FSC
VOB1
VOW1
TO VC-177 BOARD(1/14) (SEE PAGE 4-19)
10
LINE_Y
AGC_CONT
LINE
TO VC-177 BOARD(13/14) (SEE PAGE 4-60)
53
DR_V_OUT
DR_Y_OUT
DR_C_OUT
EZ_V_OUT
EZ_Y_OUT
EZ_C_OUT
COMP_V_IN
S_Y_IN
S_C_IN
EVR_4.9V
PRINPA_V
(VTR REC MODEL)
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 6/14, 9/14, 11/14)
4
VC_SO
XVC_SCK
(SEE PAGE 4-19, 24, 25, 30, 31, 36, 46, 54)
TO VC-177 BOARD(9/14) (SEE PAGE 4-45)
55
XCS_IO
(C-6) Q1305 BUFFER
Q1305 2SD2216J-QR(TX0).SO
C1343 27p CH
L1308 47uH
R1330 1200
R1331 1500
R1332 0
C1313 0.01 B
C1314 3.3 4V A
C1315 0.01 B
C1319 0.01 B
R1307 18k
C1317 10 4V TA A
(VTR REC MODEL)
C1323 0.022 B
C1342 120p CH
C1322 0.33 2012
R1308 22k
C1324 1000p B
L1303 0.56uH
C1321 0.01 B
X1305 17MHz
C1326 100p CH
C1328 22p CH
C1327 0.01 B
(D-8) IC129 SIGNAL SELECTOR
IC129 AN2220FH-EB
LPF
C1310 0.033 B 1608
C1311 0.22 2012
C1308 3.3 4V TA A
C1307 1000p B
C1309 3.3 4V TA A
C1345 3.3 4V TA A
C1306 0.01 B
C1312 0.01 B
(VTR REC MODEL)
C1318 0.22 B 2012
C1320 0.01 B
R656 0
R655 0
(COLOR EVF MODEL)
VC_SO
XVC_SCK
XCS_IO
VOW2
VOB2
R1312 12k
C1334 2.2 6.3V TA A
C1333 220 4V
R1314 1k
C1332 220 4V
R1313 1k
C1331 2.2 6.3V TA A
C1330 0.01 B
R1316 330
R1315 330
15
16
17
18
19
L1307 10uH
L1306 10uH
L1305 10uH
A_4.9V
D_3.2V
C1335 10 6.3V A
C1336 0.01 B
C1337 10 6.3V A
C1338 0.01 B
C1339 10 4V A
C1340 0.01 B
REG_GND
IKA_Y
(B/W EVF MODEL)
54
TO VC-177 BOARD(14/14) (SEE PAGE 4-64)
(W/B EVF MODEL)
VOW2
VOB2
CG_MONO_W
CG_MONO_B
44
TO VC-177 BOARD(8/14) (SEE PAGE 4-43)
C_IN
R1323 8200
(VTR REC MODEL)
ACC/RF_CONT
AGC_CONT1
IR_CONT
AGC_CONT2
R1324 12k
R1318 12k
R1319 8200
R1322 1k ±0.5% 1608
R1321 16k ±0.5% 1608
41
TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
09

COLOR EVF MODEL:CCD-TR2300E/TR3300E
B/W EVF MODEL:CCD-TR2200E, CC886
VTR REC MODEL:CCD-TR2300E/TR3300E(E, AUS)

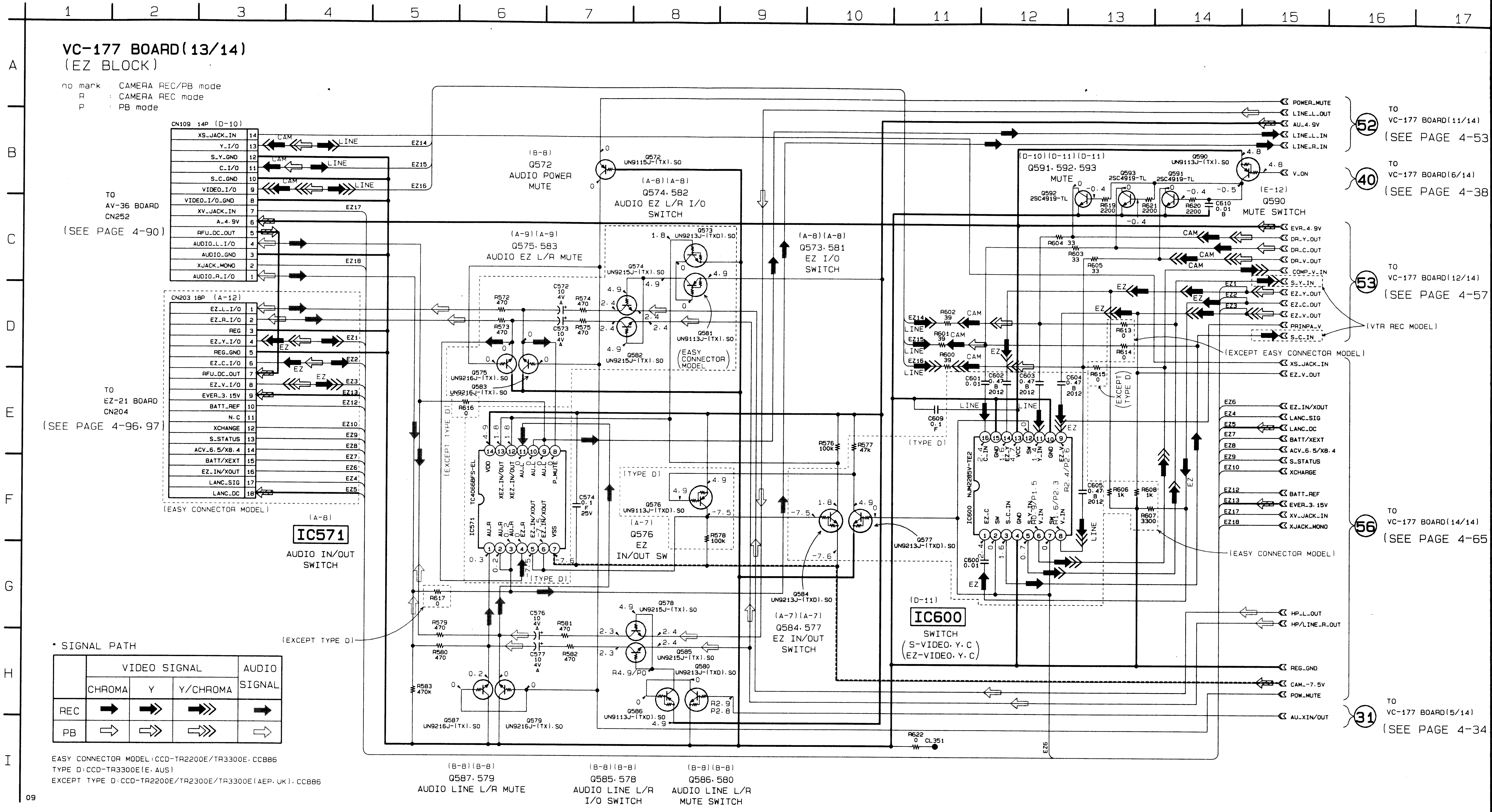
- SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	⋙
PB	⇨	⇨	⋙

VC-177 (VIDEO IN/OUT (2)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4-13 for Printed Wiring Board.

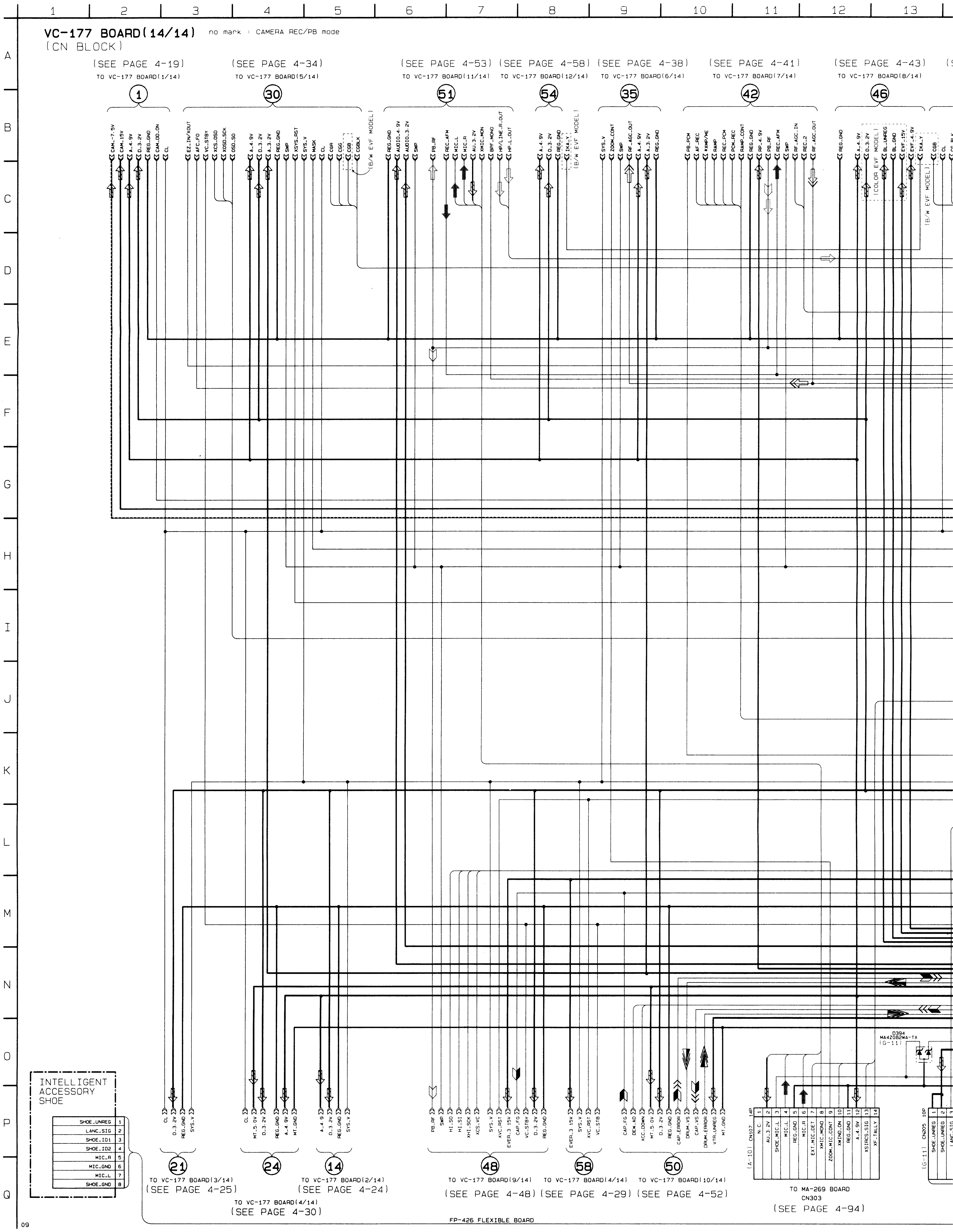

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I
VC-177 BOARD(13/14)
(EZ BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
CN109 14P (D-10)
XS_JACK_IN
Y_I/O
S_Y_GND
C_I/O
S_C_GND
VIDEO_I/O
VIDEO_I/O_GND
XV_JACK_IN
A_4.9V
RFU_DC_OUT
AUDIO_L_I/O
AUDIO_GND
XJACK_MONO
AUDIO_R_I/O
TO AV-36 BOARD CN252
(SEE PAGE 4-90)
CN203 18P (A-12)
EZ_L_I/O
EZ_R_I/O
REG
EZ_Y_I/O
REG_GND
EZ_C_I/O
RFU_DC_OUT
EZ_V_I/O
EVER_3.15V
BATT_REF
N.C
XCHANGE
S_STATUS
ACV_6.5/X8.4
BATT/XEXT
EZ_IN/XOUT
LANC_SIG
LANC_DC
TO EZ-21 BOARD CN204
(SEE PAGE 4-96, 97)
(EASY CONNECTOR MODEL)
(B-8) Q572 AUDIO POWER MUTE
(A-8)(A-8) Q574, 582 AUDIO EZ L/R I/O SWITCH
(A-9)(A-9) Q575, 583 AUDIO EZ L/R MUTE
(A-8)(A-8) Q573, 581 EZ I/O SWITCH
(A-8) IC571 AUDIO IN/OUT SWITCH
(A-7) Q576 EZ IN/OUT SW
(A-7)(A-7) Q584, 577 EZ IN/OUT SWITCH
(D-10)(D-11)(D-11) Q591, 592, 593 MUTE
(E-12) Q590 MUTE SWITCH
(D-11) IC600 SWITCH (S-VIDEO, Y, C / EZ-VIDEO, Y, C)
(EXCEPT TYPE D)
(TYPE D)
(EASY CONNECTOR MODEL)
(EXCEPT EASY CONNECTOR MODEL)
(VTR REC MODEL)
POWER_MUTE
LINE_L_OUT
AU_4.9V
LINE_L_IN
LINE_R_IN
TO VC-177 BOARD(11/14) (SEE PAGE 4-53)
V_ON
TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
EVR_4.9V
DR_Y_OUT
DR_C_OUT
DR_V_OUT
COMP_V_IN
S_Y_IN
EZ_Y_OUT
EZ_C_OUT
EZ_V_OUT
PRINPA_V
S_C_IN
TO VC-177 BOARD(12/14) (SEE PAGE 4-57)
XS_JACK_IN
EZ_V_OUT
EZ_IN/XOUT
LANC_SIG
LANC_DC
BATT/XEXT
ACV_6.5/X8.4
S_STATUS
XCHARGE
BATT_REF
EVER_3.15V
XV_JACK_IN
XJACK_MONO
TO VC-177 BOARD(14/14) (SEE PAGE 4-65)
HP_L_OUT
HP/LINE_R_OUT
REG_GND
CAM_-7.5V
POW_MUTE
AU_XIN/OUT
TO VC-177 BOARD(5/14) (SEE PAGE 4-34)
(B-8)(B-8) Q587, 579 AUDIO LINE L/R MUTE
(B-8)(B-8) Q585, 578 AUDIO LINE L/R I/O SWITCH
(B-8)(B-8) Q586, 580 AUDIO LINE L/R MUTE SWITCH
• SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
REC
PB
EASY CONNECTOR MODEL: CCD-TR2200E/TR3300E, CC886
TYPE D: CCD-TR3300E(E, AUS)
EXCEPT TYPE D: CCD-TR2200E/TR2300E/TR3300E(AEP, UK), CC886

09

VC-177 (CONNECTOR) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.



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A
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C
D
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H
I
J
K
L
M
N
O
P
Q
VC-177 BOARD(14/14)
(CN BLOCK)
no mark : CAMERA REC/PB mode
(SEE PAGE 4-19)
TO VC-177 BOARD(1/14)
①
CAM_-7.5V
CAM_15V
A_4.9V
D_3.2V
REG_GND
CAM_DD_ON
CL
(SEE PAGE 4-34)
TO VC-177 BOARD(5/14)
㉚
EZ_IN/XOUT
AFC_FO
VC_STBY
XCS_OSD
XOSD_SCK
OSD_SO
A_4.9V
D_3.2V
A_3.2V
REG_GND
SWP
XSYS_RST
SYS_V
MASK
CL
CGR
CGG
CGB
CGBLK
(B/W EVF MODEL)
(SEE PAGE 4-53)
TO VC-177 BOARD(11/14)
(51)
REG_GND
AUDIO_4.9V
AUDIO_3.2V
SWP
PB_RF
REC_AFM
MIC_L
MIC_R
AU_3.2V
XMIC_MON
BPF_MONO
HP/LINE_R_OUT
HP_L_OUT
(SEE PAGE 4-58)
TO VC-177 BOARD(12/14)
(54)
A_4.9V
D_3.2V
REG_GND
IKA_Y
(B/W EVF MODEL)
(SEE PAGE 4-38)
TO VC-177 BOARD(6/14)
㉟
SYS_V
ZOOM_CONT
SWP
RF_AGC_OUT
A_4.9V
A_3.2V
REG_GND
(SEE PAGE 4-41)
TO VC-177 BOARD(7/14)
㊷
PB_PCM
AF_REC
*XMP/ME
RAMP
REC_PCM
PCM_REC
RAMP_CONT
REG_GND
RP_4.9V
PB_RF
REC_AFM
SWP
RF_AGC_IN
REC_2
RF_AGC_OUT
(SEE PAGE 4-43)
TO VC-177 BOARD(8/14)
㊻
REG_GND
A_4.9V
D_3.2V
(COLOR EVF MODEL)
BL_UNREG
BL_GND
EVF_15V
EVF_4.9V
IKA_Y
(B/W EVF MODEL)
CGB
CL
INTELLIGENT
ACCESSORY
SHOE
SHOE_UNREG 1
LANC_SIG 2
SHOE_ID1 3
SHOE_ID2 4
MIC_R 5
MIC_GND 6
MIC_L 7
SHOE_GND 8
CL
D_3.2V
REG_GND
SYS_V
㉑
TO VC-177 BOARD(3/14)
(SEE PAGE 4-25)
CL
MT_5.0V
D_3.2V
REG_GND
A_4.9V
MT_GND
㉔
TO VC-177 BOARD(4/14)
(SEE PAGE 4-30)
A_4.9
D_3.2V
REG_GND
SYS_V
⑭
TO VC-177 BOARD(2/14)
(SEE PAGE 4-24)
PB_RF
SWP
HI_SO
HI_SI
XHI_SCK
XCS_VC
SYS_V
XVC_RST
EVER_3.15V
CAP_FG
VC_STBY
D_3.2V
REG_GND
㊽
TO VC-177 BOARD(9/14)
(SEE PAGE 4-48)
EVER_3.15V
SYS_V
XVC_RST
VC_STB
(58)
TO VC-177 BOARD(4/14)
(SEE PAGE 4-29)
CAP_FG
DEW_AD
XCC_DOWN
MT_5.0V
D_3.2V
REG_GND
CAP_ERROR
DRUM_VS
CAP_VS
DRUM_ERROR
VTR_UNREG
MT_GND
㊿
TO VC-177 BOARD(10/14)
(SEE PAGE 4-52)
FP-426 FLEXIBLE BOARD
D394
MA4Z082WA-TX
(G-11)
(A-10) CN107 14P
1 N.C.
2 AU_3.2V
3 SHOE_MIC_L
4 MIC_L
5 REG_GND
6 MIC_R
7 EXT_MIC_DET
8 XMIC_MONO
9 ZOOM_MIC_CONT
10 XWIND_ON
11 REG_GND
12 A_4.9V
13 XSIRCS_SIG
14 XF_TALLY
TO MA-269 BOARD
CN303
(SEE PAGE 4-94)
(G-11) CN205 10P
1 SHOE_UNREG
2 SHOE_UNREG
09

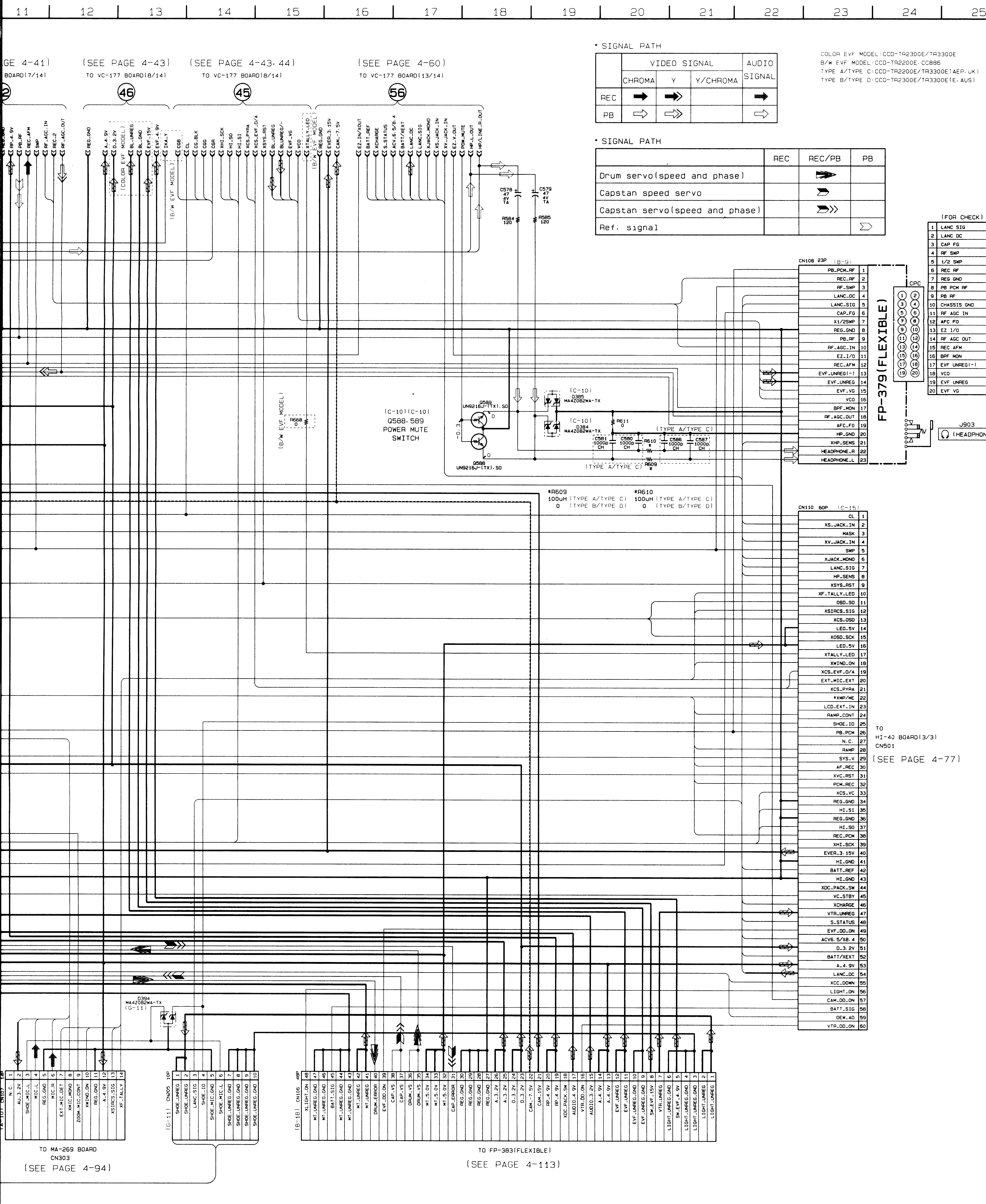
- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»		➡
PB	⇨	⇨»		⇨

- SIGNAL PATH

	REC	REC/PB	PB
Drum servo(speed and phase)		➡➡	
Capstan speed servo		➡	
Capstan servo(speed and phase)		➡»	
Ref. signal			⇨

COLOR EVF MODEL:CCD-TR2300E/TR3300E
B/W EVF MODEL:CCD-TR2200E, CC886
TYPE A/TYPE C:CCD-TR2200E/TR3300E(AEP, UK)
TYPE B/TYPE D:CCD-TR2300E/TR3300E(E, AUS)


11
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25
GE 4-41)
BOARD(7/14)
(SEE PAGE 4-43)
TO VC-177 BOARD(8/14)
46
(SEE PAGE 4-43, 44)
TO VC-177 BOARD(8/14)
45
(SEE PAGE 4-60)
TO VC-177 BOARD(13/14)
56
(COLOR EVF MODEL)
(B/W EVF MODEL)
C578 47 4V TA
C579 47 4V TA
R584 120
R585 120
(C-10)(C-10)
Q588, 589
POWER MUTE
SWITCH
Q589 UN9216J-(TX).SO
Q588 UN9216J-(TX).SO
(C-10) D385 MA4Z082WA-TX
(C-10) D384 MA4Z082WA-TX
R611 0
(TYPE A/TYPE C)
C581 1000p CH
C580 1000p CH
R610 *
C586 1000p CH
C587 1000p CH
R609 *
(TYPE A/TYPE C)
*R609
100uH (TYPE A/TYPE C)
0 (TYPE B/TYPE D)
*R610
100uH (TYPE A/TYPE C)
0 (TYPE B/TYPE D)
R668 0
CN108 23P (B-9)
1 PB_PCM_RF
2 REC_RF
3 RF_SWP
4 LANC_DC
5 LANC_SIG
6 CAP_FG
7 X1/2SWP
8 REG_GND
9 PB_RF
10 RF_AGC_IN
11 EZ_I/O
12 REC_AFM
13 EVF_UNREG(-)
14 EVF_UNREG
15 EVF_VG
16 VCO
17 BPF_MON
18 RF_AGC_OUT
19 AFC_FO
20 HP_GND
21 XHP_SENS
22 HEADPHONE_R
23 HEADPHONE_L
FP-379(FLEXIBLE)
CPC
(FOR CHECK)
1 LANC SIG
2 LANC DC
3 CAP FG
4 RF SWP
5 1/2 SWP
6 REC RF
7 REG GND
8 PB PCM RF
9 PB RF
10 CHASSIS GND
11 RF AGC IN
12 AFC FO
13 EZ I/O
14 RF AGC OUT
15 REC AFM
16 BPF MON
17 EVF UNREG(-)
18 VCO
19 EVF UNREG
20 EVF VG
J903
(HEADPHON
CN110 60P (C-15)
1 CL
2 XS_JACK_IN
3 MASK
4 XV_JACK_IN
5 SWP
6 XJACK_MONO
7 LANC_SIG
8 HP_SENS
9 XSYS_RST
10 XF_TALLY_LED
11 OSD_SO
12 XSIRCS_SIG
13 XCS_OSD
14 LED_5V
15 XOSD_SCK
16 LED_5V
17 XTALLY_LED
18 XWIND_ON
19 XCS_EVF_D/A
20 EXT_MIC_EXT
21 XCS_PYRA
22 *XMP/ME
23 LCD_EXT_IN
24 RAMP_CONT
25 SHOE_ID
26 PB_PCM
27 N.C.
28 RAMP
29 SYS_V
30 AF_REC
31 XVC_RST
32 PCM_REC
33 XCS_VC
34 REG_GND
35 HI_SI
36 REG_GND
37 HI_SO
38 REC_PCM
39 XHI_SCK
40 EVER_3.15V
41 HI_GND
42 BATT_REF
43 HI_GND
44 XDC_PACK_SW
45 VC_STBY
46 XCHARGE
47 VTR_UNREG
48 S_STATUS
49 EVF_DD_ON
50 ACV6.5/X8.4
51 D_3.2V
52 BATT/XEXT
53 A_4.9V
54 LANC_DC
55 XCC_DOWN
56 LIGHT_ON
57 CAM_DD_ON
58 BATT_SIG
59 DEW_AD
60 VTR_DD_ON
TO
HI-40 BOARD(3/3)
CN501
(SEE PAGE 4-77)
D394 MA4Z082WA-TX (G-11)
CN107 14P
TO MA-269 BOARD
CN303
(SEE PAGE 4-94)
(G-11) CN205 10P
(B-18) CN106 48P
TO FP-383(FLEXIBLE)
(SEE PAGE 4-113)

MC-Service

20 21 22 23 24 25

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»		➡
PB	⇨	⇨»		⇨

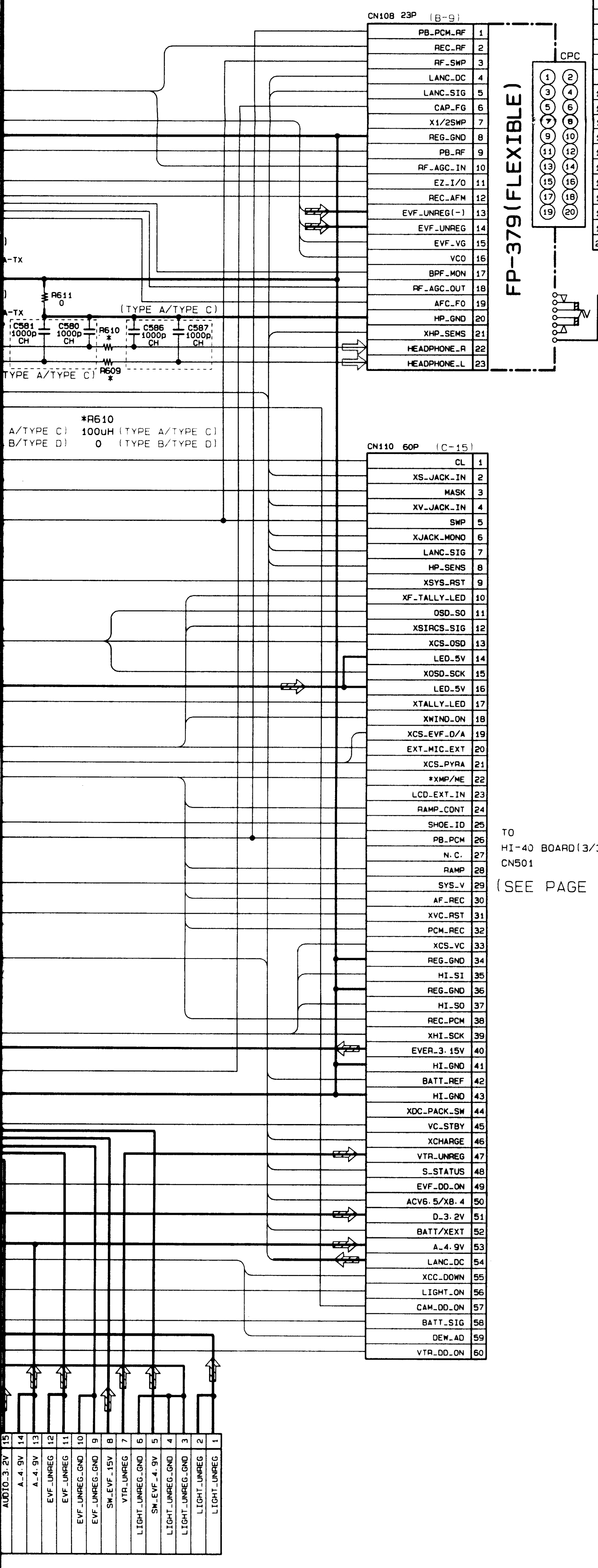
COLOR EVF MODEL:CCD-TR2300E/TR3300E
B/W EVF MODEL:CCD-TR2200E, CC886
TYPE A/TYPE C:CCD-TR2200E/TR3300E(AEP, UK)
TYPE B/TYPE D:CCD-TR2300E/TR3300E(E, AUS)

• SIGNAL PATH

	REC	REC/PB	PB
Drum servo(speed and phase)		➡➡	
Capstan speed servo		➡	
Capstan servo(speed and phase)		➡»	
Ref. signal			⇨

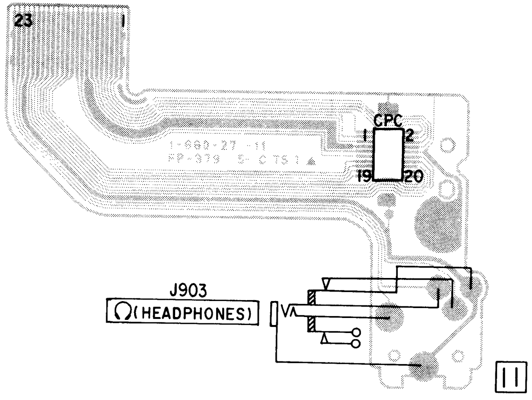
(FOR CHECK)

1	LANC SIG
2	LANC DC
3	CAP FG
4	RF SWP
5	1/2 SWP
6	REC RF
7	REG GND
8	PB PCM RF
9	PB RF
10	CHASSIS GND
11	RF AGC IN
12	AFC FO
13	EZ I/O
14	RF AGC OUT
15	REC AFM
16	BPF MON
17	EVF UNREG(-)
18	VCO
19	EVF UNREG
20	EVF VG


CN108 23P (B-9)
PB_PCM_RF 1
REC_RF 2
RF_SWP 3
LANC_DC 4
LANC_SIG 5
CAP_FG 6
X1/2SWP 7
REG_GND 8
PB_RF 9
RF_AGC_IN 10
EZ_I/O 11
REC_AFM 12
EVF_UNREG(-) 13
EVF_UNREG 14
EVF_VG 15
VCO 16
BPF_MON 17
RF_AGC_OUT 18
AFC_FO 19
HP_GND 20
XHP_SEMS 21
HEADPHONE_R 22
HEADPHONE_L 23
FP-379(FLEXIBLE)
CPC
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
J903
Ω (HEADPHONES)
A-TX
A-TX
R611
0
(TYPE A/TYPE C)
C581 1000p CH
C580 1000p CH
R610 *
C586 1000p CH
C587 1000p CH
R609 *
TYPE A/TYPE C)
*R610
A/TYPE C) 100uH (TYPE A/TYPE C)
B/TYPE D) 0 (TYPE B/TYPE D)
CN110 60P (C-15)
CL 1
XS_JACK_IN 2
MASK 3
XV_JACK_IN 4
SWP 5
XJACK_MONO 6
LANC_SIG 7
HP_SENS 8
XSYS_RST 9
XF_TALLY_LED 10
OSD_SO 11
XSIRCS_SIG 12
XCS_OSD 13
LED_5V 14
XOSD_SCK 15
LED_5V 16
XTALLY_LED 17
XWIND_ON 18
XCS_EVF_D/A 19
EXT_MIC_EXT 20
XCS_PYRA 21
*XMP/ME 22
LCD_EXT_IN 23
RAMP_CONT 24
SHOE_ID 25
PB_PCM 26
N.C. 27
RAMP 28
SYS_V 29
AF_REC 30
XVC_RST 31
PCM_REC 32
XCS_VC 33
REG_GND 34
HI_SI 35
REG_GND 36
HI_SO 37
REC_PCM 38
XHI_SCK 39
EVER_3.15V 40
HI_GND 41
BATT_REF 42
HI_GND 43
XDC_PACK_SW 44
VC_STBY 45
XCHARGE 46
VTR_UNREG 47
S_STATUS 48
EVF_DD_ON 49
ACV6.5/X8.4 50
D_3.2V 51
BATT/XEXT 52
A_4.9V 53
LANC_DC 54
XCC_DOWN 55
LIGHT_ON 56
CAM_DD_ON 57
BATT_SIG 58
DEW_AD 59
VTR_DD_ON 60
TO
HI-40 BOARD(3/3)
CN501
(SEE PAGE 4-77)
15 AUDIO_3.2V
14 A_4.9V
13 A_4.9V
12 EVF_UNREG
11 EVF_UNREG
10 EVF_UNREG_GND
9 EVF_UNREG_GND
8 SW_EVF_15V
7 VTR_UNREG
6 LIGHT_UNREG_GND
5 SW_EVF_4.9V
4 LIGHT_UNREG_GND
3 LIGHT_UNREG_GND
2 LIGHT_UNREG
1 LIGHT_UNREG

FP-379 (HEADPHONES) FLEXIBLE BOARD

FP-379 BOARD


23
1
CPC
1 2
19 20
1-660-27-11
FP-379
J903
Ω(HEADPHONES)
11

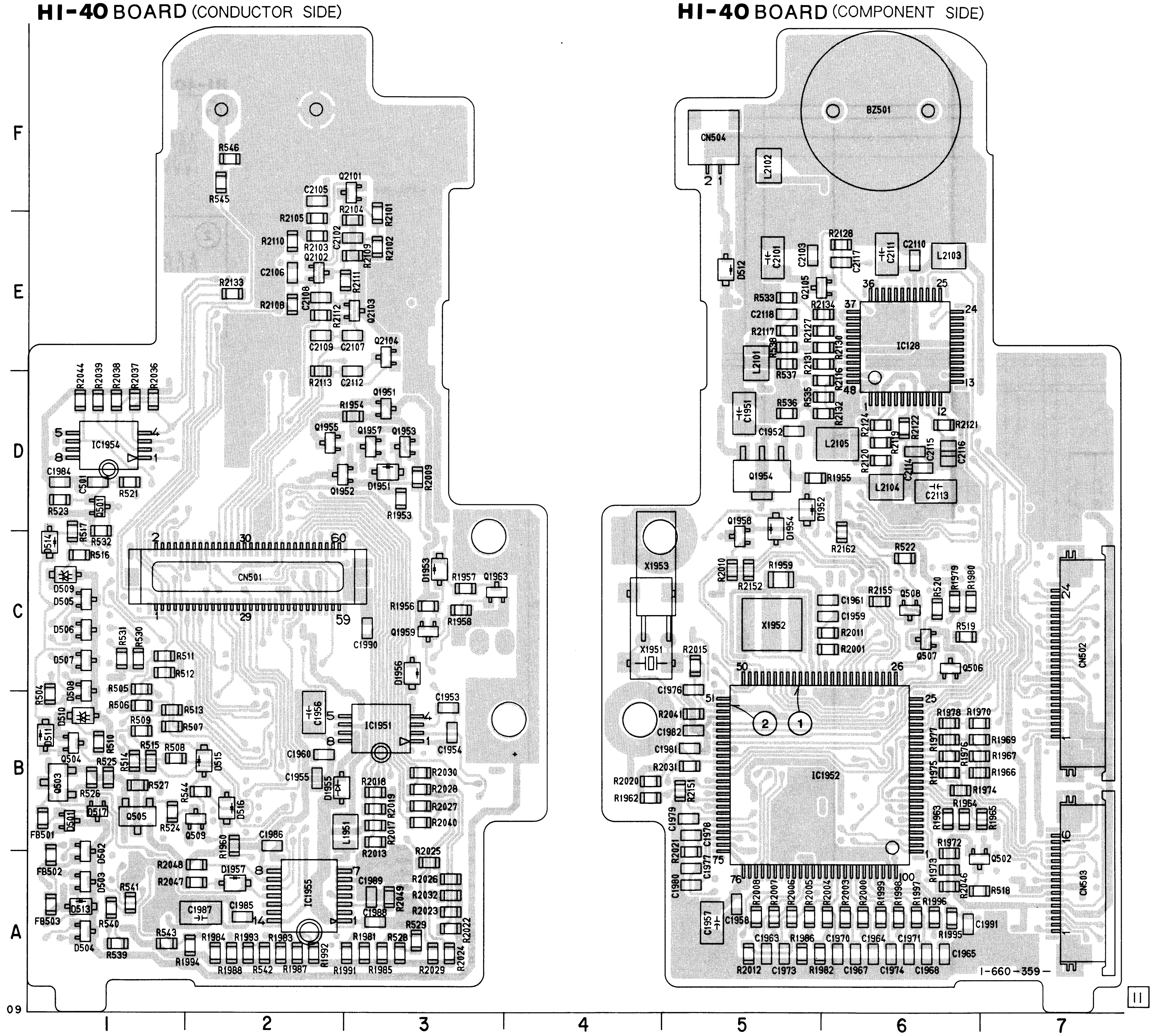
MC-Service

HI-40 (MODE CONTROL) PRINTED WIRING BOARD

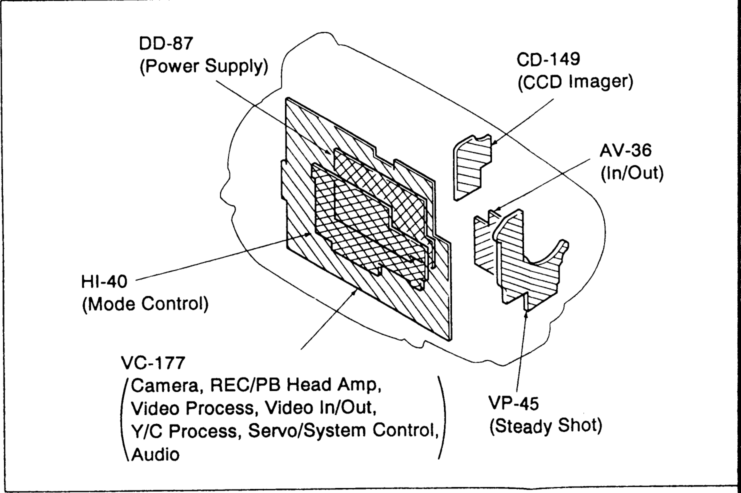
— Ref No. HI-40 BOARD: 20,000 series —

There are few cases that the part isn't mounted in this model is printed on this diagram.

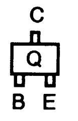
HI-40 BOARD (CONDUCTOR SIDE) / HI-40 BOARD (COMPONENT SIDE)


HI-40 BOARD (CONDUCTOR SIDE)
HI-40 BOARD (COMPONENT SIDE)
F
E
D
C
B
A
1
2
3
4
5
6
7
09
CN501
IC1954
IC1951
IC1955
Q2101
Q2102
Q2104
Q1951
Q1952
Q1953
Q1955
Q1957
Q1959
Q1963
Q504
Q505
Q509
Q503
D1951
D1953
D1956
D1957
L1951
BZ501
CN504
L2102
L2101
L2103
L2104
L2105
IC128
IC1952
Q1954
Q1958
X1953
X1952
X1951
CN502
CN503
Q506
Q507
Q508
Q502
1-660-359-
11

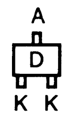
HI-40 BOARD	
BZ501	F-6
C501	D-1
C1951	D-5
C1952	D-5
C1955	B-2
C1956	B-2
C1957	A-5
C1958	A-5
C1959	C-6
C1961	C-6
C1976	C-5
C1977	A-5
C1978	B-5
C1980	A-5
C1981	B-5
C1982	B-5
C1984	D-1
C1986	B-2
C1987	A-2
C1988	A-3
C1989	A-3
C1990	C-3
C2101	E-5
C2102	E-3
C2103	E-5
C2105	F-2
C2106	E-2
C2107	E-3
C2108	E-2
C2109	E-2
C2110	E-6
C2111	E-6
C2112	E-3
C2113	D-6
C2114	D-6
C2115	D-6
C2116	D-6
C2117	E-6
C2118	E-5
CN501	C-2
CN502	C-7
CN503	A-7
CN504	F-5
D501	B-1
D502	B-1
D503	A-1
D504	A-1
D511	B-1
D512	E-5
D514	C-1
D515	B-2
D516	B-2
D1951	D-3
D1952	D-5
D1953	C-3
D1954	D-5
D1955	B-2
D1956	C-3
D1957	A-2
FB501	B-1
FB502	A-1
FB503	A-1
IC128	E-6
IC1951	B-3
IC1952	B-6
IC1954	D-1
IC1955	A-2
L1951	B-3
L2101	E-5
L2102	F-5
L2103	E-6
L2104	D-6
L2105	D-6
Q501	D-1
Q502	A-6
Q503	B-1
Q504	B-1
Q505	B-1
Q506	C-6
Q507	C-6
Q508	C-6
Q509	B-2
Q1951	D-3
Q1952	D-2
Q1953	D-3
Q1954	D-5
Q1955	D-2
Q1959	C-3
Q1963	C-3
Q2101	F-3
Q2102	E-2
Q2103	E-3
Q2104	E-3
Q2105	E-5
R510	B-1
R511	C-1
R512	C-1
R513	B-1
R514	B-1
R515	B-1
R516	C-1
R518	A-6
R519	C-6
R520	C-6
R521	D-1
R522	C-6
R523	D-1
R524	B-1
R525	B-1
R526	B-1
R527	B-1
R528	A-3
R529	A-3
R530	C-1
R531	C-1
R539	A-1
R540	A-1
R541	A-1
R542	A-2
R545	F-2
R1953	D-3
R1954	D-3
R1955	D-6
R1956	C-3
R1957	C-3
R1958	C-3
R1959	C-5
R1960	B-2
R1962	B-4
R1963	B-6
R1964	B-6
R1965	B-6
R1966	B-6
R1967	B-6
R1969	B-6
R1970	B-6
R1972	A-6
R1973	A-6
R1974	B-6
R1975	B-6
R1976	B-6
R1977	B-6
R1978	B-6
R1979	C-6
R1980	C-6
R1981	A-3
R1982	A-5
R1983	A-2
R1984	A-2
R1985	A-3
R1986	A-5
R1987	A-2
R1988	A-2
R1991	A-3
R1992	A-2
R1993	A-2
R1994	A-2
R1995	A-6
R1996	A-6
R1997	A-6
R1998	A-6
R1999	A-6
R2000	A-6
R2001	C-6
R2003	A-6
R2004	A-6
R2005	A-5
R2006	A-5
R2007	A-5
R2008	A-5
R2011	C-6
R2012	A-5
R2013	B-3
R2015	C-5
R2017	B-3
R2018	B-3
R2019	B-3
R2020	B-4
R2021	B-5
R2022	A-3
R2023	A-3
R2024	A-3
R2025	A-3
R2026	A-3
R2027	B-3
R2028	B-3
R2029	A-3
R2030	B-3
R2031	B-5
R2032	A-3
R2036	D-1
R2037	D-1
R2038	D-1
R2039	D-1
R2040	B-3
R2041	B-5
R2044	D-1
R2046	A-6
R2047	A-2
R2048	A-2
R2049	A-3
R2101	F-3
R2102	E-3
R2103	E-2
R2104	E-3
R2105	E-2
R2108	E-2
R2109	E-3
R2110	E-2
R2111	E-3
R2112	E-2
R2113	E-2
R2116	D-6
R2117	E-5
R2119	D-6
R2120	D-6
R2121	D-6
R2122	D-6
R2124	D-6
R2127	E-6
R2128	E-6
R2130	E-6
R2131	E-6
R2132	D-6
R2133	E-2
R2134	E-6
R2151	B-5
R2152	C-5
R2155	C-6
R2162	D-6
X1951	C-4
X1952	C-5


DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
VP-45
(Steady Shot)

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

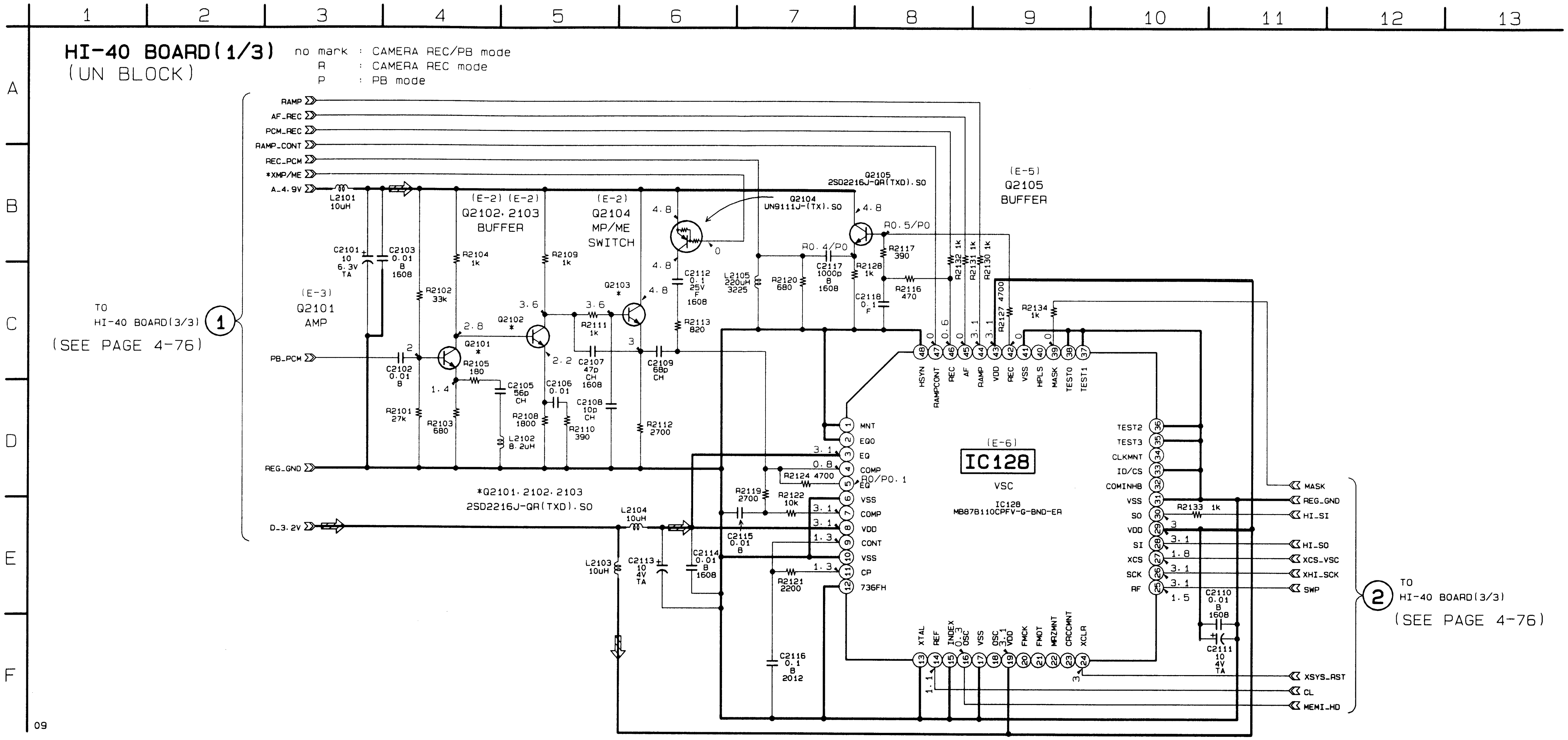


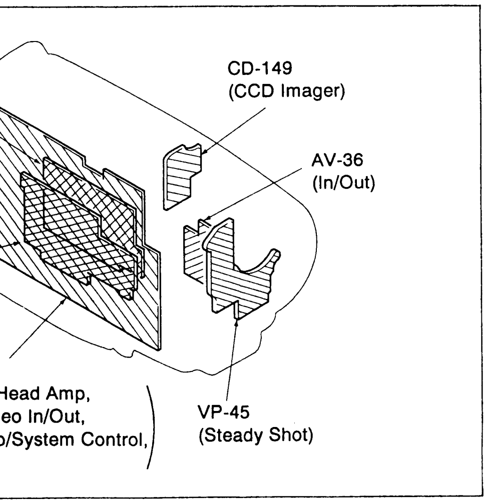
- Chip diode



HI-40 (MODE CONTROL (1)) SCHEMATIC DIAGRAM

— Ref No. HI-40 BOARD: 20,000 series —

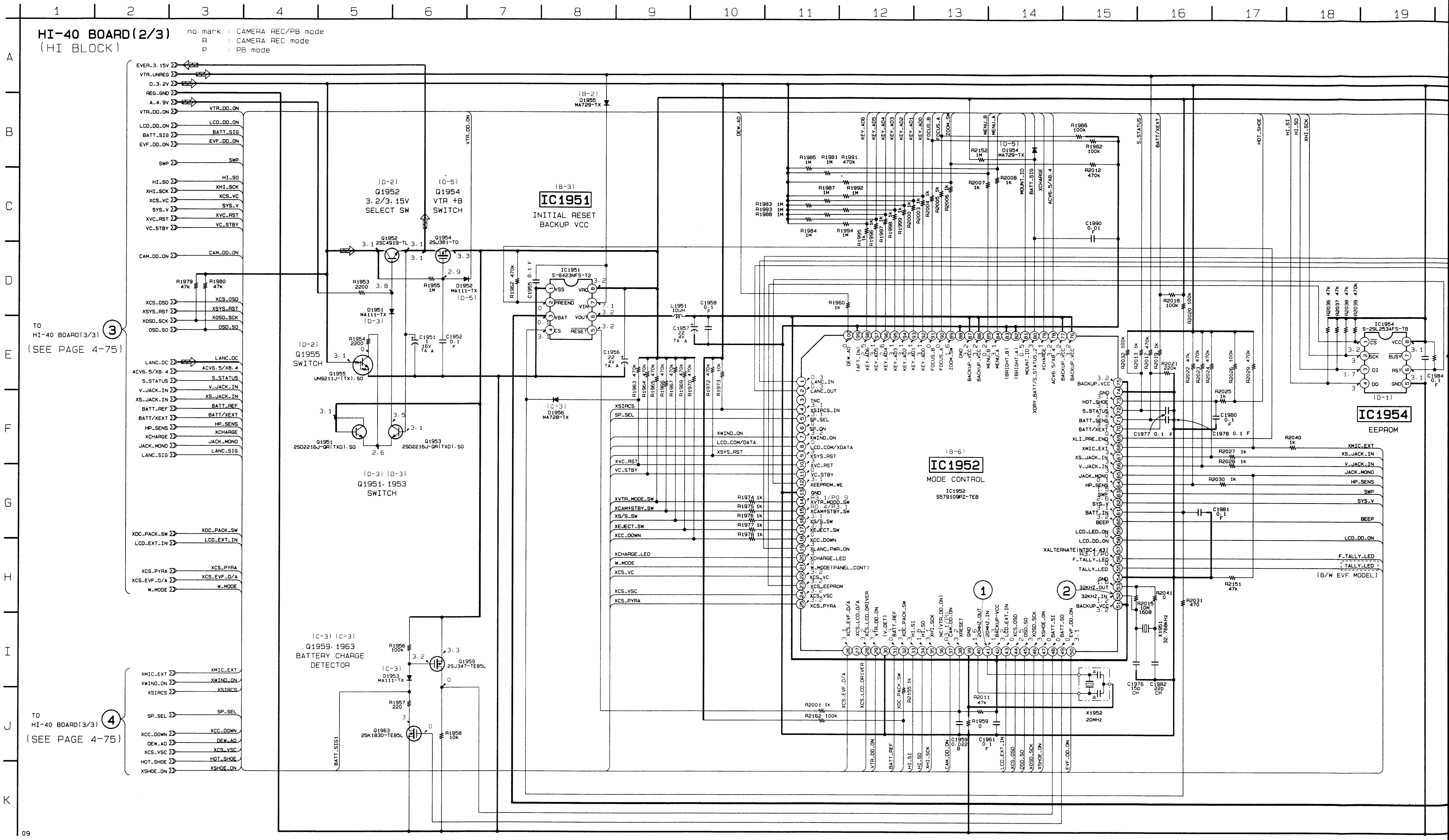

1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
HI-40 BOARD(1/3)
(UN BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
RAMP
AF_REC
PCM_REC
RAMP_CONT
REC_PCM
*XMP/ME
A_4.9V
PB_PCM
REG_GND
D_3.2V
TO
HI-40 BOARD(3/3)
1
(SEE PAGE 4-76)
(E-3)
Q2101
AMP
(E-2) (E-2)
Q2102, 2103
BUFFER
(E-2)
Q2104
MP/ME
SWITCH
(E-5)
Q2105
BUFFER
Q2105
2SD2216J-QR(TXD).SO
Q2104
UN9111J-(TX).SO
*Q2101, 2102, 2103
2SD2216J-QR(TXD).SO
L2101
10uH
C2101
10
6.3V
TA
C2103
0.01
B
1608
C2102
0.01
B
R2101
27k
R2102
33k
R2103
680
R2104
1k
R2105
180
C2105
56p
CH
R2108
1800
L2102
8.2uH
C2106
0.01
1608
R2109
1k
R2111
1k
C2107
47p
CH
1608
C2108
10p
CH
R2110
390
Q2102
Q2103
C2109
68p
CH
R2112
2700
C2112
0.1
25V
F
1608
R2113
820
L2105
220uH
3225
R2120
680
C2117
1000p
B
1608
R2128
1k
C2118
0.1
F
R2117
390
R2116
470
R2132 1k
R2131 1k
R2130 1k
R2127 4700
R2134
1k
R0.5/P0
R0.4/P0
(E-6)
IC128
VSC
IC128
MB87B110CPFV-G-BND-ER
MNT
EQO
EQ
COMP
EQ
VSS
COMP
VDD
CONT
VSS
CP
736FH
HSYN
RAMPCONT
REC
AF
RAMP
VDD
REC
VSS
HPLS
MASK
TEST0
TEST1
TEST2
TEST3
CLKMNT
ID/CS
COMINHB
VSS
SO
VDD
SI
XCS
SCK
RF
XTAL
REF
INDEX
OSC
VSS
OSC
VDD
FMCK
FMOT
MRZMNT
CRCCMNT
XCLR
R2124 4700
R2119
2700
R2122
10k
C2115
0.01
B
R2121
2200
C2116
0.1
B
2012
L2104
10uH
L2103
10uH
C2113
10
4V
TA
C2114
0.01
B
1608
R2133 1k
C2110
0.01
B
1608
C2111
10
4V
TA
MASK
REG_GND
HI_SI
HI_SO
XCS_VSC
XHI_SCK
SWP
XSYS_RST
CL
MEMI_HD
TO
HI-40 BOARD(3/3)
2
(SEE PAGE 4-76)
4.8
4.8
4.8
3.6
3.6
2.8
2.2
1.4
3
2
0
3.1
0.8
3.1
3.1
1.3
1.3
1.8
3.1
3.1
1.5
1.1
0.3
3.1
09


CD-149
(CCD Imager)
AV-36
(In/Out)
VP-45
(Steady Shot)
Head Amp,
eo In/Out,
o/System Control,

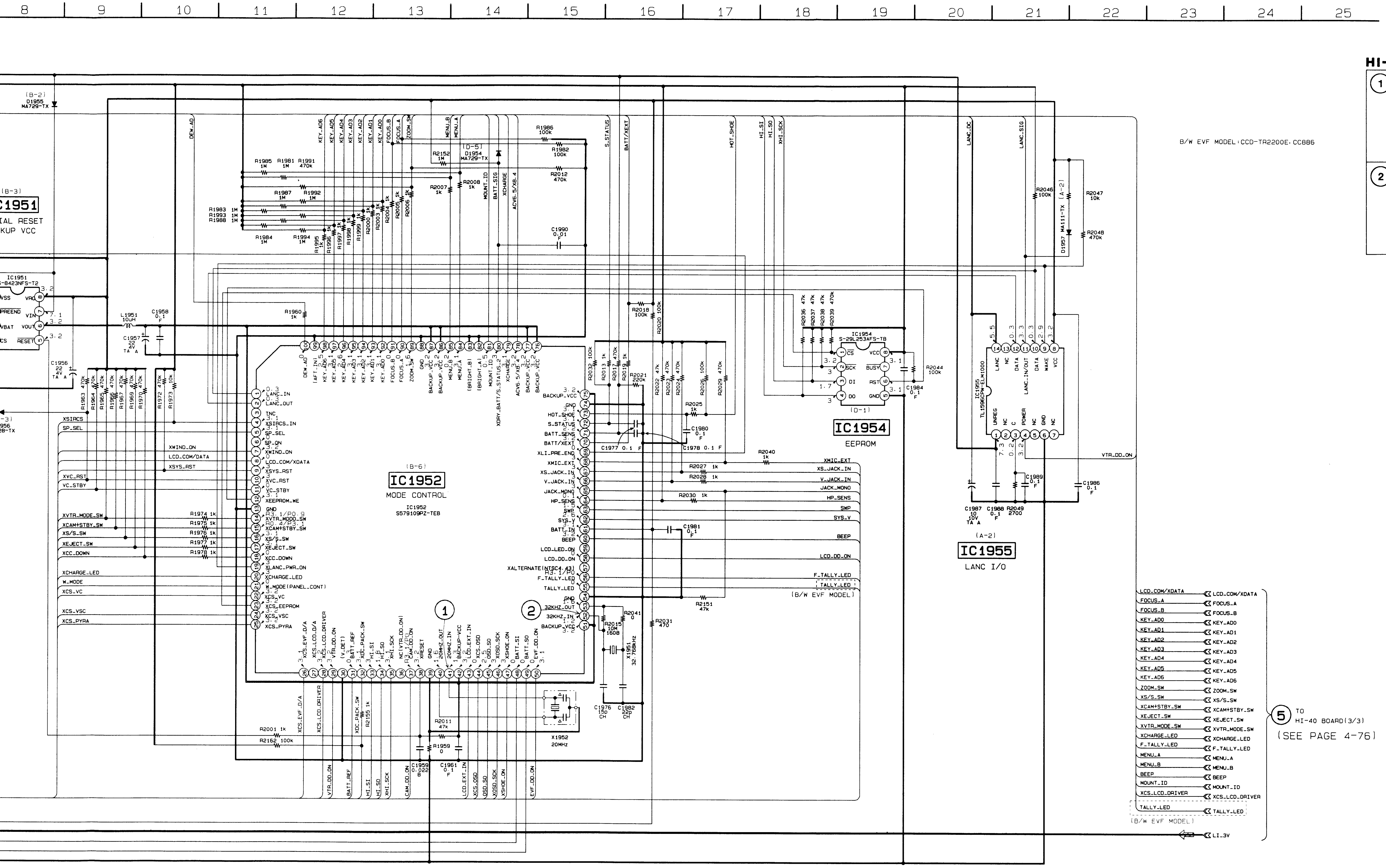
HI-40 (MODE CONTROL (2)) SCHEMATIC DIAGRAM

— Ref No. HI-40 BOARD: 20,000 series —

- Refer to page 4–67 for Printed Wiring Board.



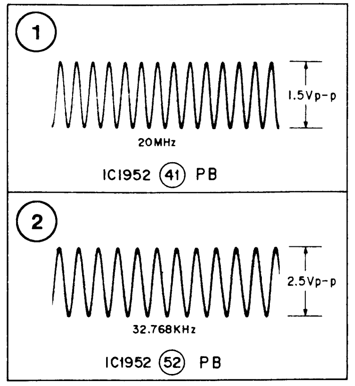
HI-40 BOARD (2/3)
(HI BLOCK)
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode
TO HI-40 BOARD(3/3) ③ (SEE PAGE 4-75)
TO HI-40 BOARD(3/3) ④ (SEE PAGE 4-75)
EVER_3.15V
VTR_UNREG
D_3.2V
REG_GND
A_4.9V
VTR_DD_ON
LCD_DD_ON
BATT_SIG
EVF_DD_ON
SWP
HI_SO
XHI_SCK
XCS_VC
SYS_V
XVC_RST
VC_STBY
CAM_DD_ON
XCS_OSD
XSYS_RST
XOSD_SCK
OSD_SO
LANC_DC
ACV6.5/X8.4
S_STATUS
V_JACK_IN
XS_JACK_IN
BATT_REF
BATT/XEXT
HP_SENS
XCHARGE
JACK_MONO
LANC_SIG
XDC_PACK_SW
LCD_EXT_IN
XCS_PYRA
XCS_EVF_D/A
W_MODE
XMIC_EXT
XWIND_ON
XSIRCS
SP_SEL
XCC_DOWN
DEW_AD
XCS_VSC
HOT_SHOE
XSHOE_ON
(D-2) Q1952 3.2/3.15V SELECT SW
(D-5) Q1954 VTR +B SWITCH
(B-3) IC1951 INITIAL RESET BACKUP VCC
IC1951 S-8423NFS-T2
(D-2) Q1955 SWITCH
(D-3) (D-3) Q1951, 1953 SWITCH
(C-3) (C-3) Q1959, 1963 BATTERY CHARGE DETECTOR
(B-6) IC1952 MODE CONTROL
IC1952 S579109PZ-TE8
IC1954 S-29L253AFS-TB
(D-1) IC1954 EEPROM
X1952 20MHz
X1951 32.768kHz
F_TALLY_LED
TALLY_LED
(B/W EVF MODEL)
BEEP
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K
09



8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
IC1951
RESET
BACKUP VCC
IC1952
MODE CONTROL
IC1952
S579109PZ-TEB
IC1954
EEPROM
IC1955
LANC I/O
X1952
20MHz
X1951
32.768kHz
(B/W EVF MODEL)
5
TO
HI-40 BOARD(3/3)
(SEE PAGE 4-76)

B/W EVF MODEL:CCD-TR2200E, CC886

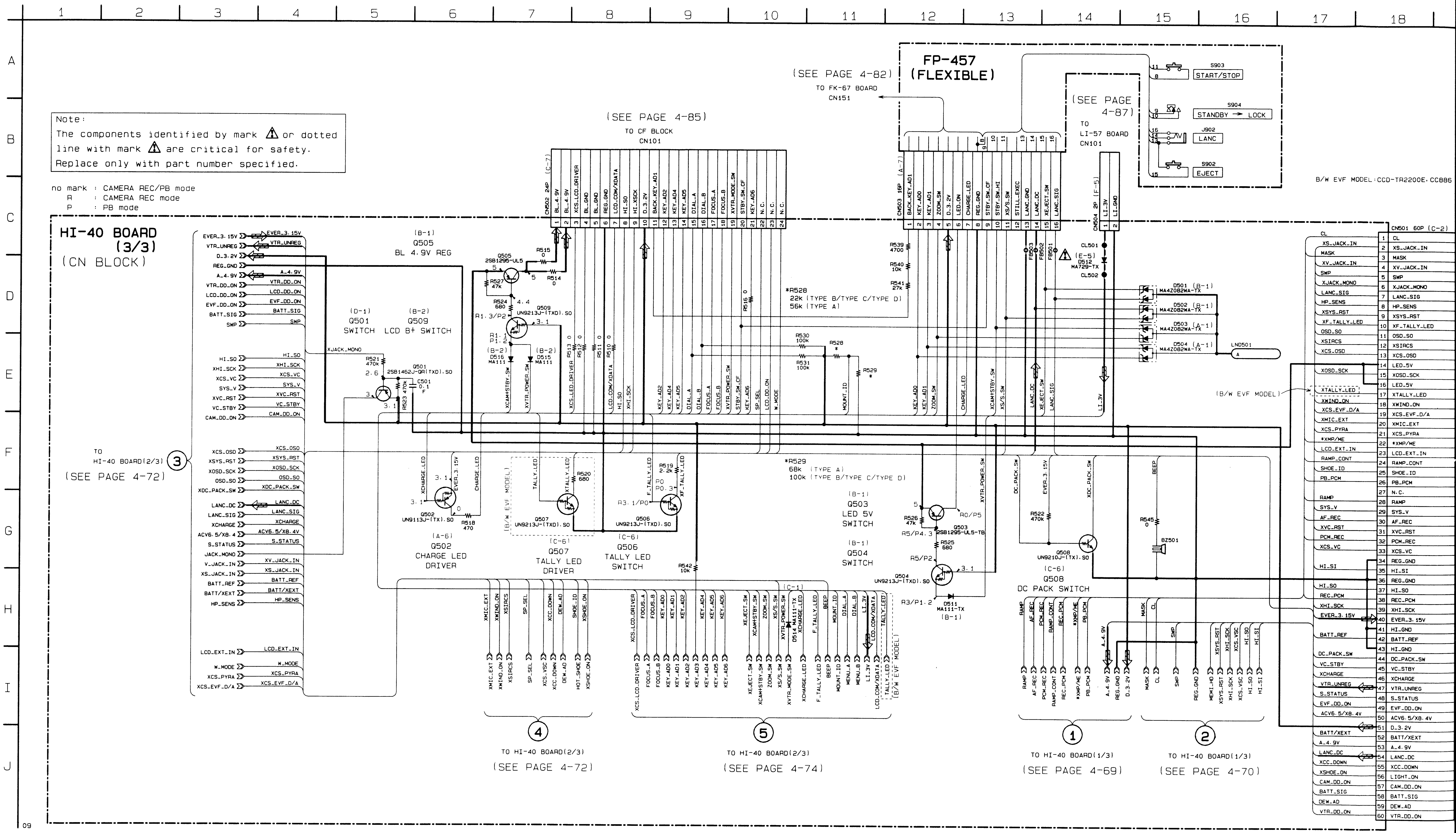
HI-40 BOARD



HI-40 (MODE CONTROL (3)), FP-457 (FUNCTION SWITCH) SCHEMATIC DIAGRAMS

— Ref No. HI-40 BOARD: 20,000 series —

- Refer to page 4-67 for Printed Wiring Board.

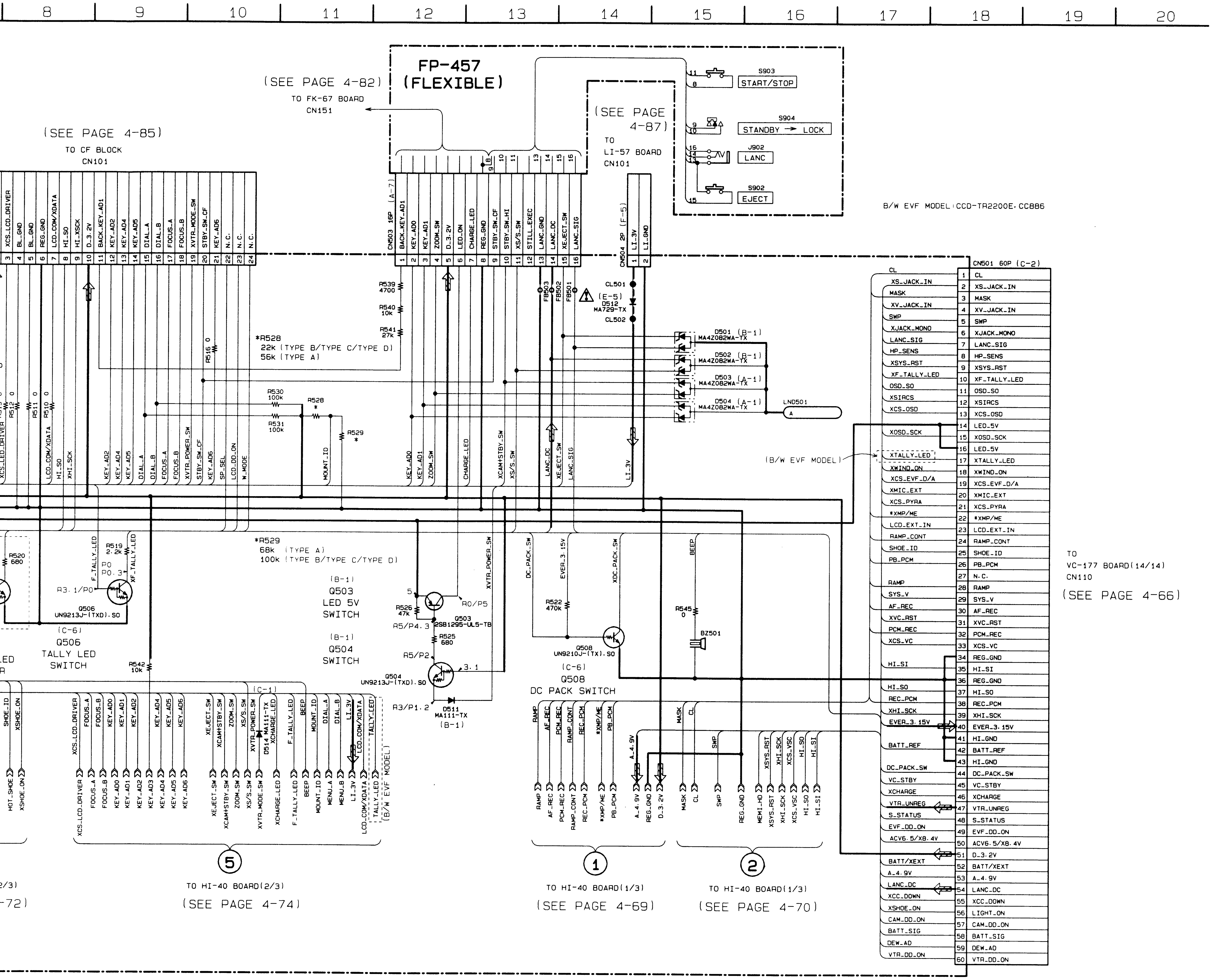


Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

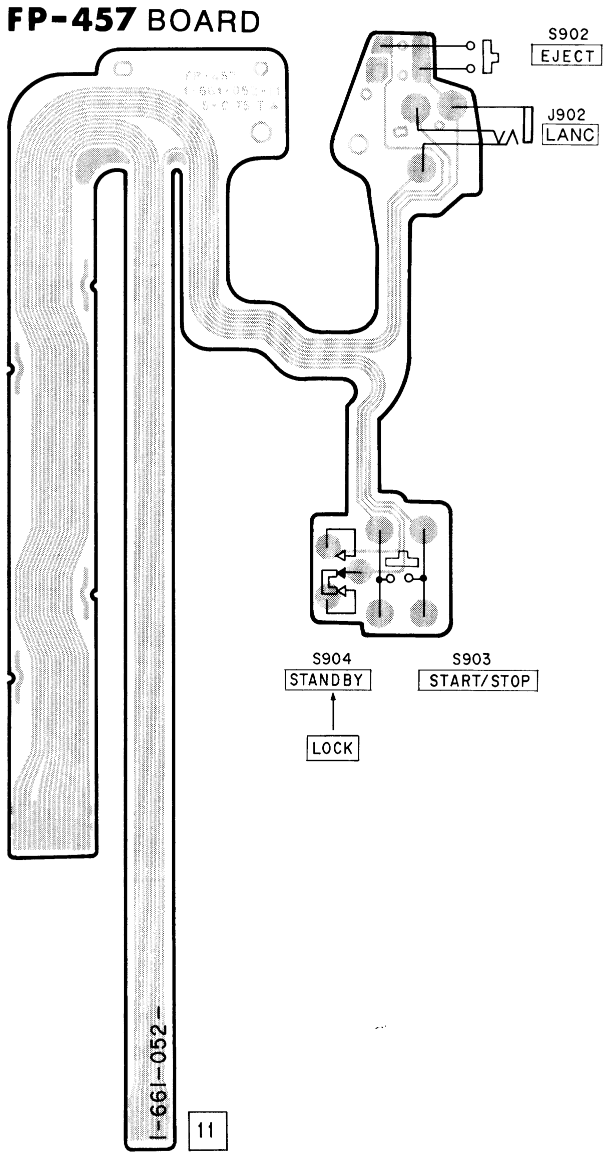
no mark : CAMERA REC/PB mode
R : CAMERA REC mode
P : PB mode

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
FP-457
(FLEXIBLE)
(SEE PAGE 4-82)
TO FK-67 BOARD
CN151
(SEE PAGE 4-85)
TO CF BLOCK
CN101
(SEE PAGE 4-87)
TO
LI-57 BOARD
CN101
S903
START/STOP
S904
STANDBY → LOCK
J902
LANC
S902
EJECT
B/W EVF MODEL : CCD-TR2200E, CC886
HI-40 BOARD
(3/3)
(CN BLOCK)
CN502 24P (C-7)
CN503 16P (A-7)
CN504 2P (F-5)
CN501 60P (C-2)
(B-1)
Q505
BL 4.9V REG
(D-1)
Q501
SWITCH
(B-2)
Q509
LCD B+ SWITCH
(A-6)
Q502
CHARGE LED
DRIVER
(C-6)
Q507
TALLY LED
DRIVER
(C-6)
Q506
TALLY LED
SWITCH
(B-1)
Q503
LED 5V
SWITCH
(B-1)
Q504
SWITCH
(C-6)
Q508
DC PACK SWITCH
*R528
22k (TYPE B/TYPE C/TYPE D)
56k (TYPE A)
*R529
68k (TYPE A)
100k (TYPE B/TYPE C/TYPE D)
D501 (B-1) MA4Z082WA-TX
D502 (B-1) MA4Z082WA-TX
D503 (A-1) MA4Z082WA-TX
D504 (A-1) MA4Z082WA-TX
D512 MA729-TX
LND501
BZ501
(B/W EVF MODEL)
TO
HI-40 BOARD(2/3)
(SEE PAGE 4-72)
③
④
TO HI-40 BOARD(2/3)
(SEE PAGE 4-72)
⑤
TO HI-40 BOARD(2/3)
(SEE PAGE 4-74)
①
TO HI-40 BOARD(1/3)
(SEE PAGE 4-69)
②
TO HI-40 BOARD(1/3)
(SEE PAGE 4-70)
09

- Refer to page 4-67 for Printed Wiring Board.


8
9
10
11
12
13
14
15
16
17
18
19
20
FP-457
(FLEXIBLE)
(SEE PAGE 4-82)
TO FK-67 BOARD
CN151
(SEE PAGE 4-87)
TO
LI-57 BOARD
CN101
(SEE PAGE 4-85)
TO CF BLOCK
CN101
S903 START/STOP
S904 STANDBY → LOCK
J902 LANC
S902 EJECT
B/W EVF MODEL: CCD-TR2200E, CC886
3 XCS_LCD_DRIVER
4 BL_GND
5 BL_GND
6 REG_GND
7 LCD_COM/XDATA
8 HI_SO
9 HI_XSCK
10 D_3.2V
11 BACK_KEY_AD1
12 KEY_AD2
13 KEY_AD4
14 KEY_AD5
15 DIAL_A
16 DIAL_B
17 FOCUS_A
18 FOCUS_B
19 XVTR_MODE_SW
20 STBY_SW_CF
21 KEY_AD6
22 N.C.
23 N.C.
24 N.C.
CN503 16P (A-7)
1 BACK_KEY_AD1
2 KEY_AD0
3 KEY_AD1
4 ZOOM_SW
5 D_3.2V
6 LED_ON
7 CHARGE_LED
8 REG_GND
9 STBY_SW_CF
10 STBY_SW_HI
11 XS/S_SW
12 STILL_EXEC
13 LANC_GND
14 LANC_DC
15 XEJECT_SW
16 LANC_SIG
CN504 2P (F-5)
1 LI_3V
2 LI_GND
R539 4700
R540 10k
R541 27k
*R528 22k (TYPE B/TYPE C/TYPE D) 56k (TYPE A)
R516 0
R511 0
R510 0
R530 100k
R531 100k
R528 *
R529 *
FB503
FB502
FB501
CL501
CL502
(E-5) D512 MA729-TX
D501 (B-1) MA4Z082WA-TX
D502 (B-1) MA4Z082WA-TX
D503 (A-1) MA4Z082WA-TX
D504 (A-1) MA4Z082WA-TX
LND501
(B/W EVF MODEL)
*R529 68k (TYPE A) 100k (TYPE B/TYPE C/TYPE D)
R520 680
R519 2.2k
F_TALLY_LED
XF_TALLY_LED
R3.1/P0
Q506 UN9213J-(TXD).SO
(C-6) Q506 TALLY LED SWITCH
R542 10k
(B-1) Q503 LED 5V SWITCH
(B-1) Q504 SWITCH
R526 47k
R5/P4.3
Q503 2SB1295-UL5-TB
R525 680
R0/P5
R5/P2
Q504 UN9213J-(TXD).SO
R3/P1.2
D511 MA111-TX (B-1)
XVTR_POWER_SW
DC_PACK_SW
EVER_3.15V
XDC_PACK_SW
R522 470k
Q508 UN9210J-(TX).SO
(C-6) Q508 DC PACK SWITCH
BEEP
R545 0
BZ501
(C-1)
D514 MA111-TX
CN501 60P (C-2)
1 CL
2 XS_JACK_IN
3 MASK
4 XV_JACK_IN
5 SWP
6 XJACK_MONO
7 LANC_SIG
8 HP_SENS
9 XSYS_RST
10 XF_TALLY_LED
11 OSD_SO
12 XSIRCS
13 XCS_OSD
14 LED_5V
15 XOSD_SCK
16 LED_5V
17 XTALLY_LED
18 XWIND_ON
19 XCS_EVF_D/A
20 XMIC_EXT
21 XCS_PYRA
22 *XMP/ME
23 LCD_EXT_IN
24 RAMP_CONT
25 SHOE_ID
26 PB_PCM
27 N.C.
28 RAMP
29 SYS_V
30 AF_REC
31 XVC_RST
32 PCM_REC
33 XCS_VC
34 REG_GND
35 HI_SI
36 REG_GND
37 HI_SO
38 REC_PCM
39 XHI_SCK
40 EVER_3.15V
41 HI_GND
42 BATT_REF
43 HI_GND
44 DC_PACK_SW
45 VC_STBY
46 XCHARGE
47 VTR_UNREG
48 S_STATUS
49 EVF_DD_ON
50 ACV6.5/X8.4V
51 D_3.2V
52 BATT/XEXT
53 A_4.9V
54 LANC_DC
55 XCC_DOWN
56 LIGHT_ON
57 CAM_DD_ON
58 BATT_SIG
59 DEW_AD
60 VTR_DD_ON
TO
VC-177 BOARD(14/14)
CN110
(SEE PAGE 4-66)
HOT_SHOE
XSHOE_ON
XCS_LCD_DRIVER
FOCUS_A
FOCUS_B
KEY_AD0
KEY_AD1
KEY_AD2
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
XEJECT_SW
XCAM+STBY_SW
ZOOM_SW
XS/S_SW
XVTR_MODE_SW
XCHARGE_LED
F_TALLY_LED
BEEP
MOUNT_ID
MENU_A
MENU_B
LI_3V
LCD_COM/XDATA
TALLY_LED
(B/W EVF MODEL)
⑤
TO HI-40 BOARD(2/3)
(SEE PAGE 4-74)
RAMP
AF_REC
PCM_REC
RAMP_CONT
REC_PCM
*XMP/ME
PB_PCM
A_4.9V
REG_GND
D_3.2V
①
TO HI-40 BOARD(1/3)
(SEE PAGE 4-69)
MASK
CL
SWP
REG_GND
MEMI_HD
XSYS_RST
XHI_SCK
XCS_VSC
HI_SO
HI_SI
②
TO HI-40 BOARD(1/3)
(SEE PAGE 4-70)
2/3)
-72)

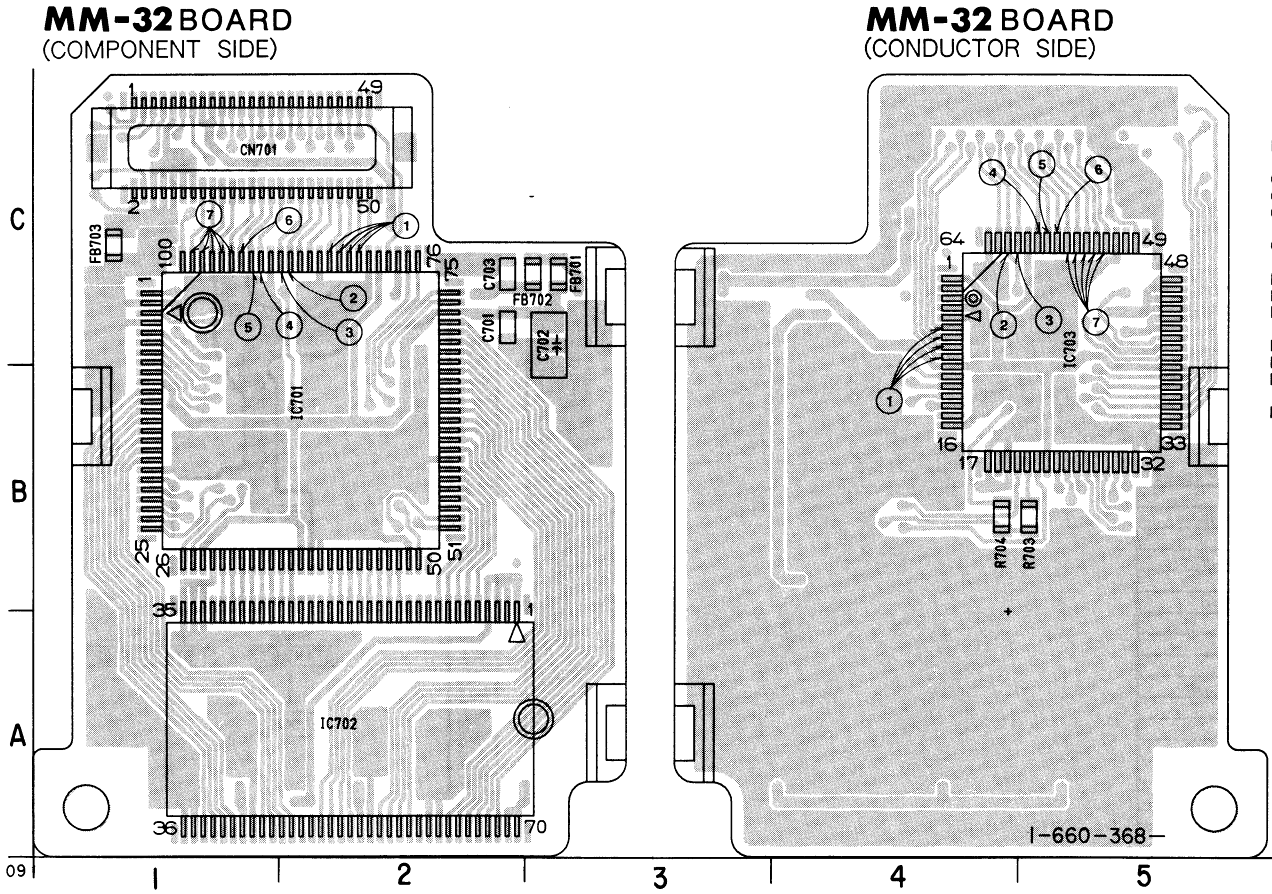
FP-457 (FUNCTION SWITCH) FLEXIBLE BOARD


FP-457 BOARD
S902 EJECT
J902 LANC
S904 STANDBY
LOCK
S903 START/STOP
1-661-052-
11

MODE CONTROL (3), FUNCTION SWITCH
HI-40 (3/3), FP-457

MM-32 (DIGITAL MEMORY) PRINTED WIRING BOARD (DIGITAL MEMORY MODEL)

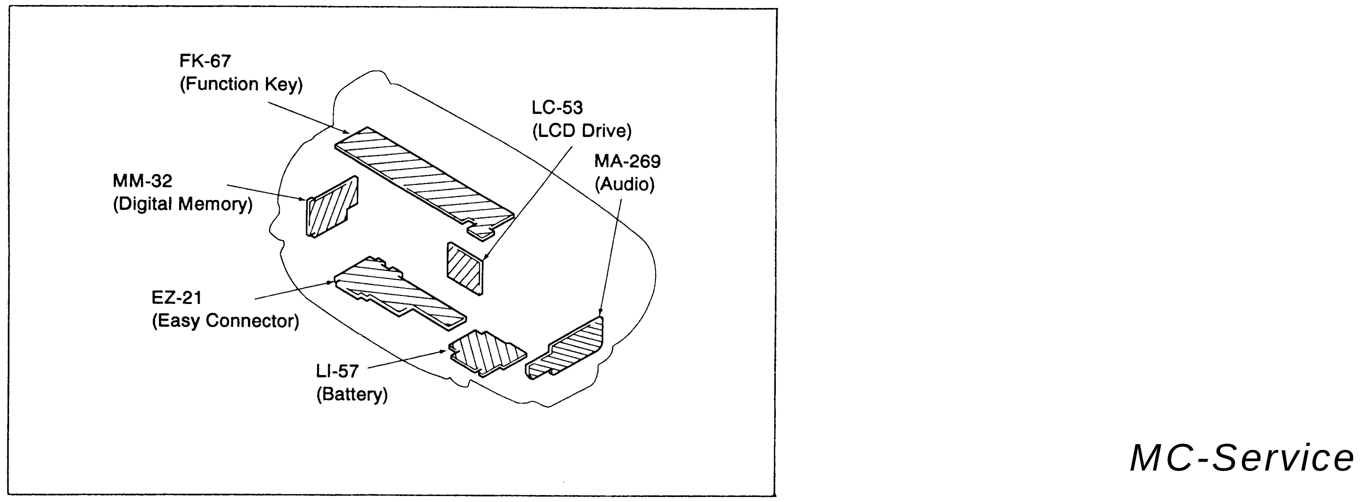
— Ref No. MM-32 BOARD: 9,000 series —


MM-32 BOARD
(COMPONENT SIDE)
MM-32 BOARD
(CONDUCTOR SIDE)
CN701
IC701
IC702
IC703
FB701
FB702
FB703
C701
C702
C703
R703
R704
1-660-368-
C
B
A
09
1
2
3
4
5

MM-32	BOARD
C701	C-2
C702	C-3
C703	C-2
CN701	C-1
FB701	C-3
FB702	C-3
FB703	C-1
IC701	B-2
IC702	A-2
IC703	C-5
R703	B-5

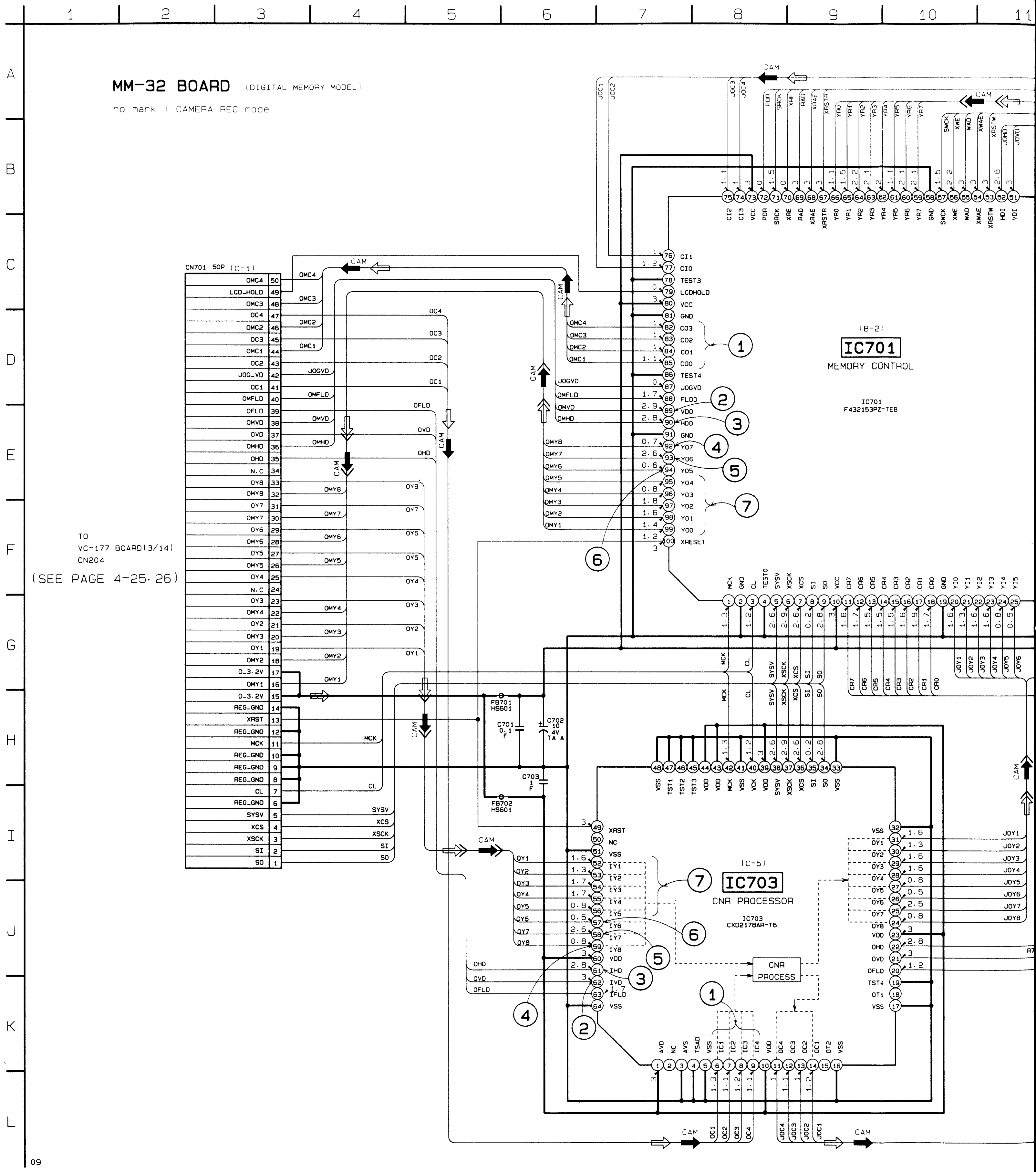
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

There are few cases that the part isn't mounted in this model is printed on this diagram.


FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
MM-32
(Digital Memory)
EZ-21
(Easy Connector)
LI-57
(Battery)

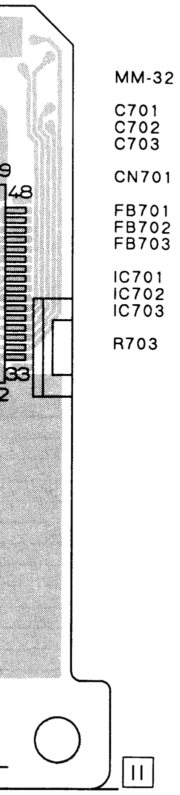
MM-32 (DIGITAL MEMORY) SCHEMATIC DIAGRAM (DIGITAL MEMORY MODEL)

— Ref No. MM-32 BOARD: 9,000 series —


MM-32 BOARD (DIGITAL MEMORY MODEL)
no mark : CAMERA REC mode
CN701 50P (C-1)
50 OMC4
49 LCD_HOLD
48 OMC3
47 OC4
46 OMC2
45 OC3
44 OMC1
43 OC2
42 JOG_VD
41 OC1
40 OMFLD
39 OFLD
38 OMVD
37 OVD
36 OMHD
35 OHD
34 N.C
33 OY8
32 OMY8
31 OY7
30 OMY7
29 OY6
28 OMY6
27 OY5
26 OMY5
25 OY4
24 N.C
23 OY3
22 OMY4
21 OY2
20 OMY3
19 OY1
18 OMY2
17 D_3.2V
16 OMY1
15 D_3.2V
14 REG_GND
13 XRST
12 REG_GND
11 MCK
10 REG_GND
9 REG_GND
8 REG_GND
7 CL
6 REG_GND
5 SYSV
4 XCS
3 XSCK
2 SI
1 SO
TO
VC-177 BOARD(3/14)
CN204
(SEE PAGE 4-25, 26)
CAM
(B-2)
IC701
MEMORY CONTROL
IC701
F432153PZ-TEB
CI1
CI0
TEST3
LCDHOLD
VCC
GND
CO3
CO2
CO1
CO0
TEST4
JOGVD
FLDO
VDO
HDO
GND
YO7
YO6
YO5
YO4
YO3
YO2
YO1
YO0
XRESET
CI2
CI3
VCC
PDR
SRCK
XRE
RAD
XRAE
XRSTR
YR0
YR1
YR2
YR3
YR4
YR5
YR6
YR7
GND
SWCK
XWE
WAD
XWAE
XRSTW
HDI
VDI
FB701
HS601
C701
0.1
F
C702
10
4V
TA A
C703
1
F
FB702
HS601
(C-5)
IC703
CNR PROCESSOR
IC703
CXD2178AR-T6
CNR
PROCESS
XRST
NC
VSS
IVD
IFLD
AVD
AVS
TSAD
VDD
OHD
OVD
OFLD
TST4
OT1
MCK
CL
SYSV
XSCK
XCS
SI
SO
VSS
JOY1
JOY2
JOY3
JOY4
JOY5
JOY6
JOY7
JOY8
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
09

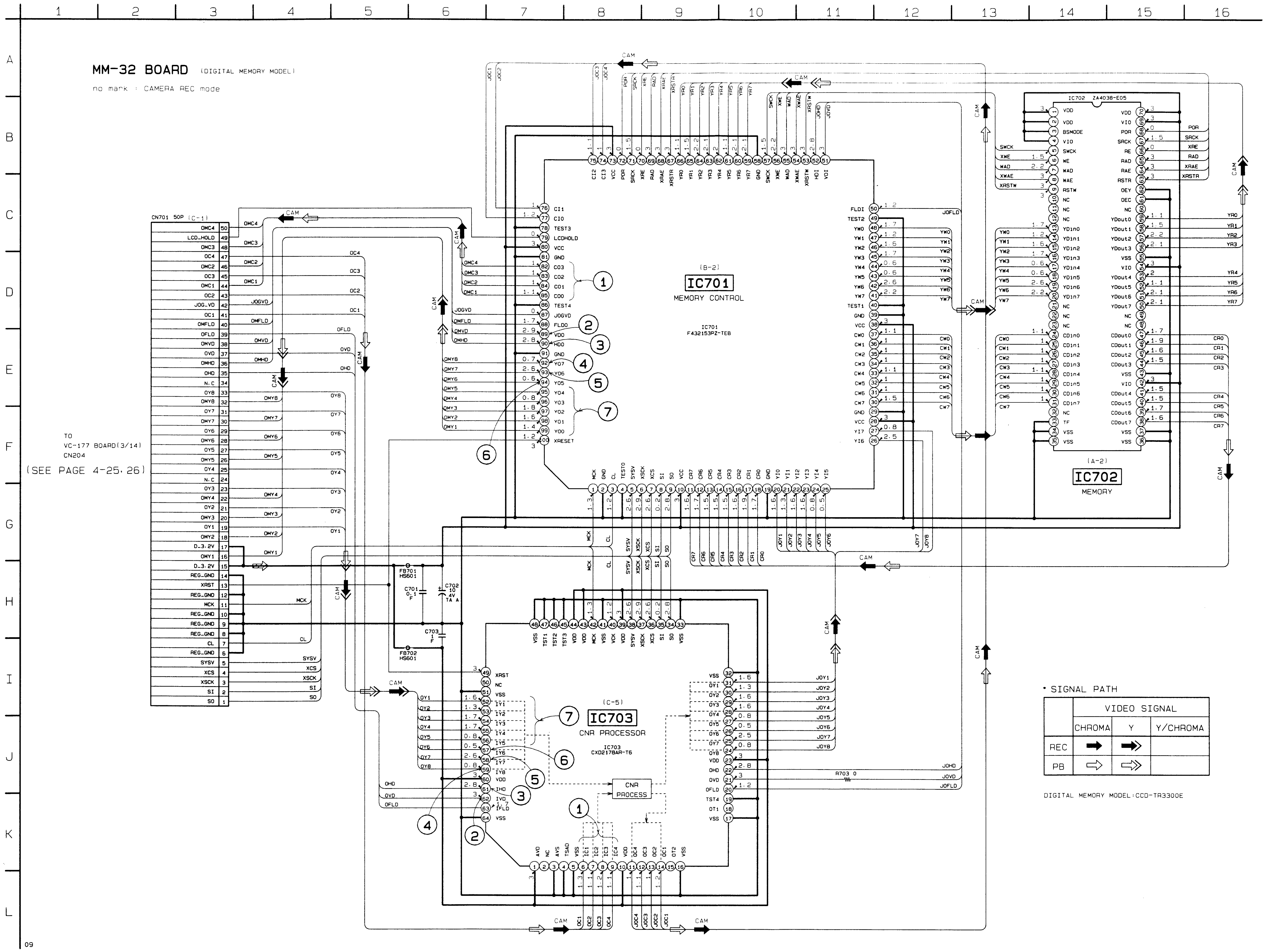
MM-32 (DIGITAL MEMORY) SCHEMATIC DIAGRAM (DIGITAL MEMORY MODEL)

— Ref No. MM-32 BOARD: 9,000 series —



MM-32	BOARD
C701	C-2
C702	C-3
C703	C-2
CN701	C-1
FB701	C-3
FB702	C-3
FB703	C-1
IC701	B-2
IC702	A-2
IC703	C-5
R703	B-5

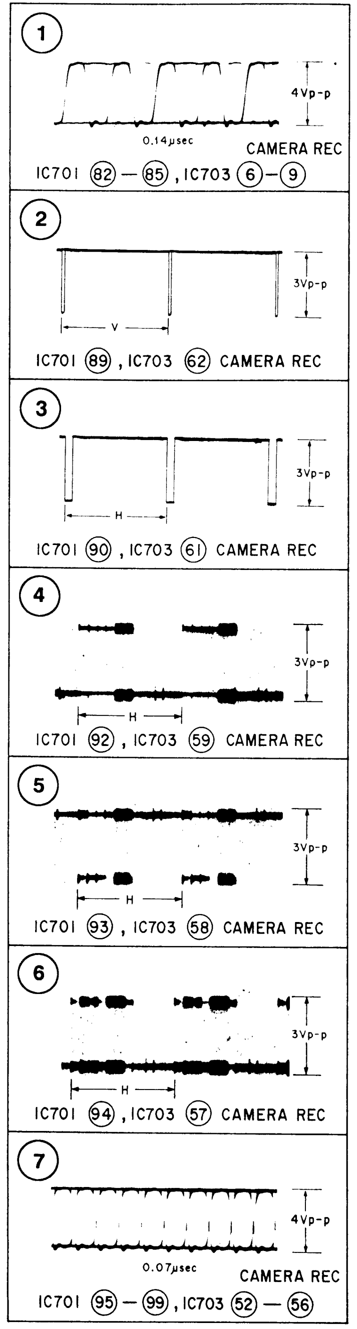
in this model is


MM-32 BOARD (DIGITAL MEMORY MODEL)
no mark : CAMERA REC mode
CN701 50P (C-1)
TO VC-177 BOARD(3/14) CN204
(SEE PAGE 4-25, 26)
(B-2) IC701 MEMORY CONTROL
IC701 F432153PZ-TEB
(A-2) IC702 MEMORY
IC702 ZA4038-E05
(C-5) IC703 CNR PROCESSOR
IC703 CXD2178AR-T6
CNR PROCESS
FB701 HS601
FB702 HS601
C701 0.1 F
C702 10 4V TA A
C703 1 F
R703 0
CAM
DIGITAL MEMORY MODEL:CCD-TR3300E

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	
PB	⇨	⇨	

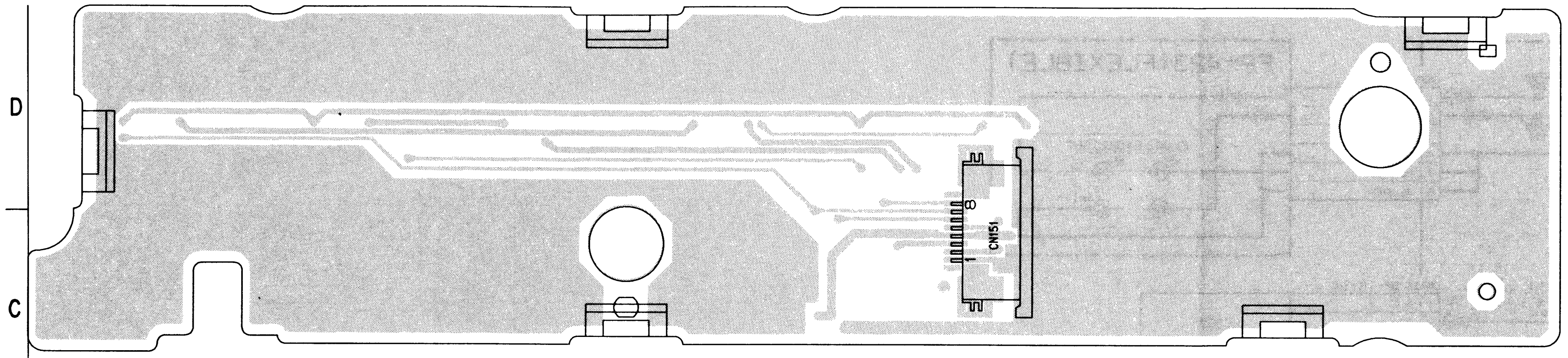
MM-32 BOARD



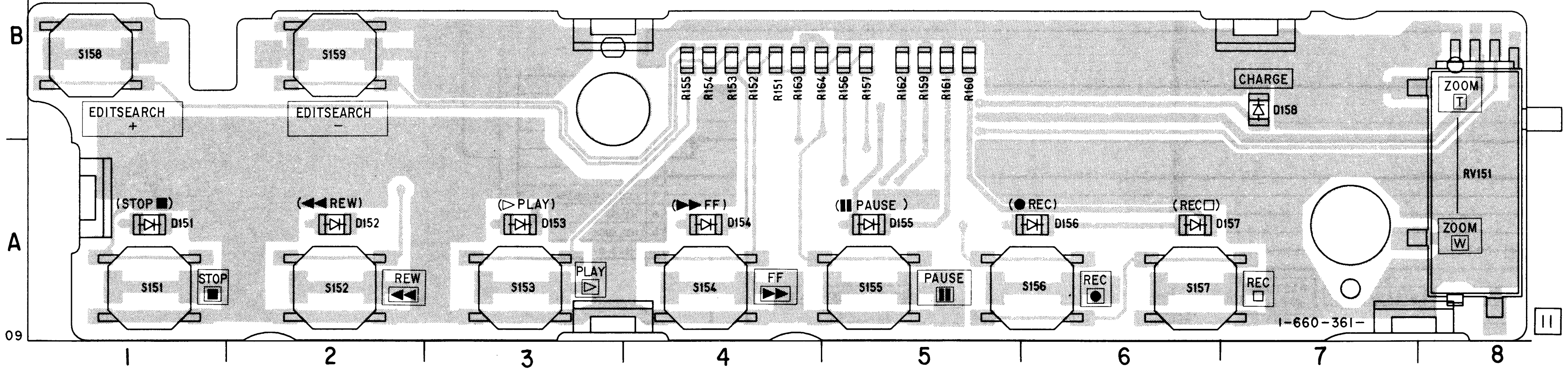
FK-67 (FUNCTION KEY) PRINTED WIRING BOARD

— Ref No. FK-67 BOARD: 3,000 series —

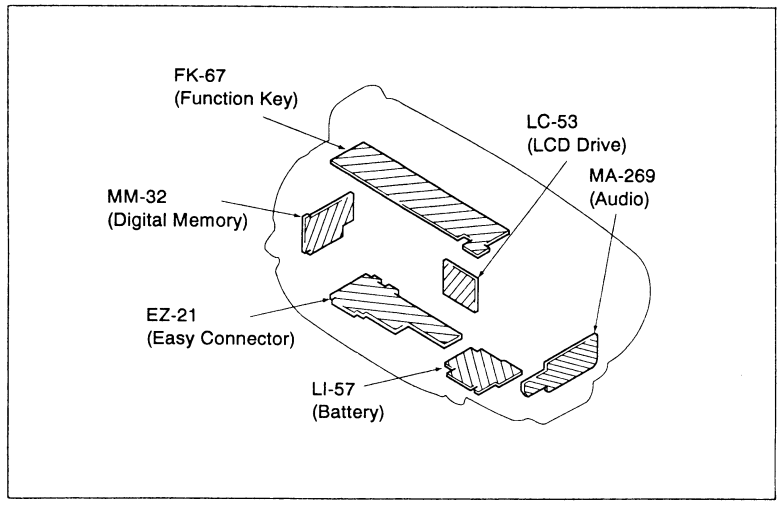
FK-67 BOARD (CONDUCTOR SIDE)



FK-67 BOARD (COMPONENT SIDE)


B
A
09
S158
S159
EDITSEARCH +
EDITSEARCH −
R155
R154
R153
R152
R151
R163
R164
R156
R157
R162
R159
R161
R160
CHARGE
D158
ZOOM T
RV151
ZOOM W
(STOP ■)
D151
(◀◀ REW)
D152
(▷ PLAY)
D153
(▶▶ FF)
D154
(❚❚ PAUSE)
D155
(● REC)
D156
(REC□)
D157
S151
STOP ■
S152
REW ◀◀
S153
PLAY ▷
S154
FF ▶▶
S155
PAUSE ❚❚
S156
REC ●
S157
REC □
1-660-361-
11
1
2
3
4
5
6
7
8

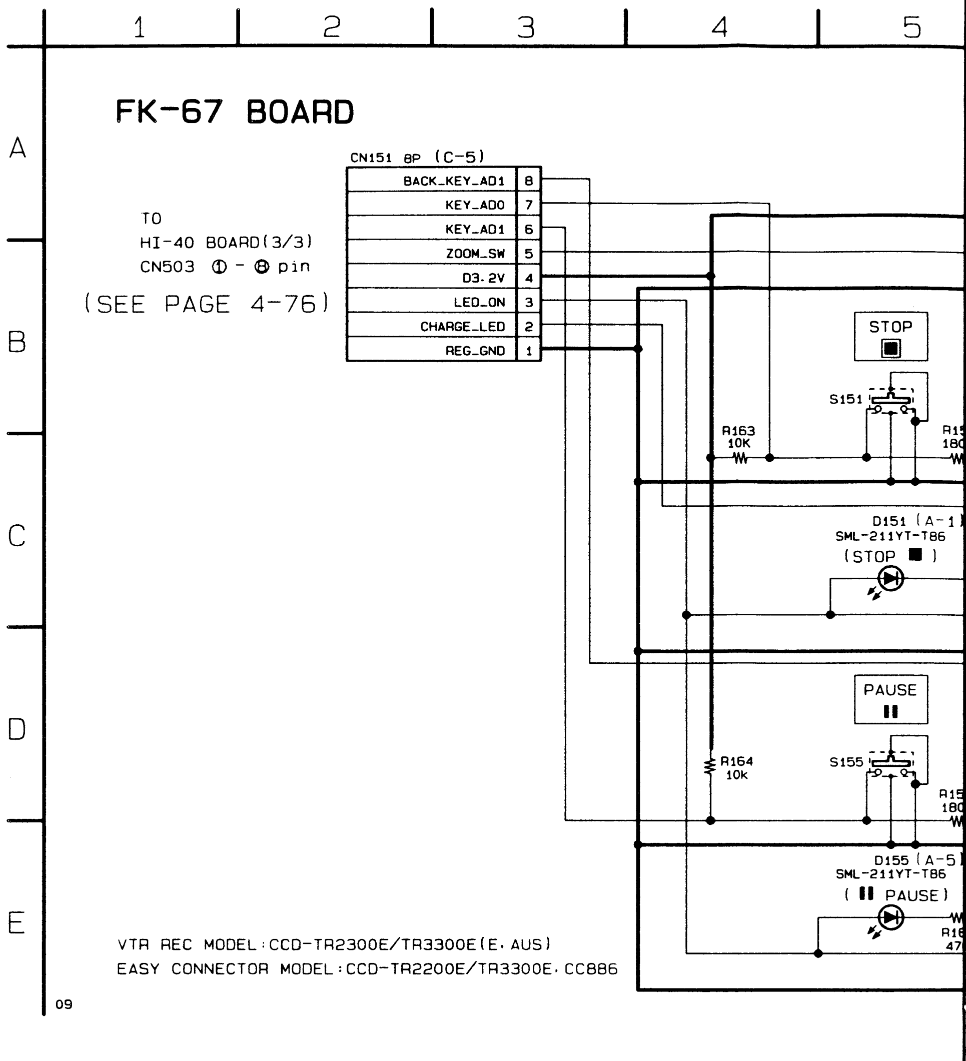
There are few cases that the part isn't mounted in this model is printed on this diagram.

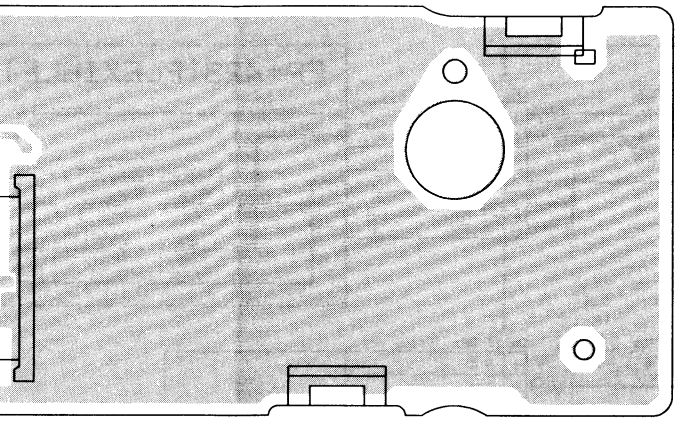

FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
MM-32
(Digital Memory)
EZ-21
(Easy Connector)
LI-57
(Battery)

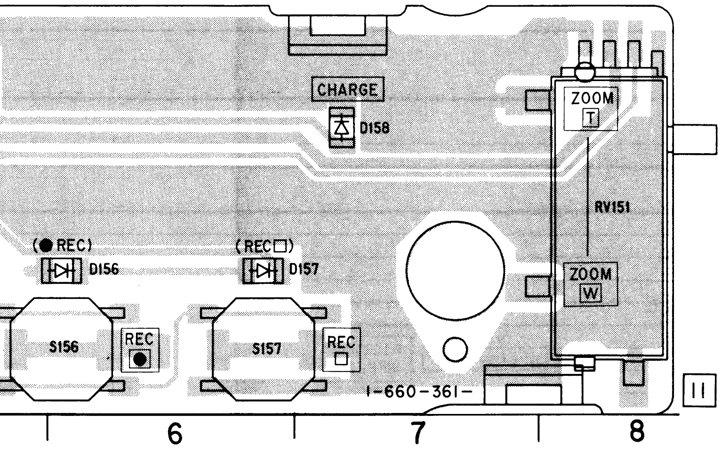
FK-67 BOARD	
CN151	C-5
D151	A-1
D152	A-2
D153	A-3
D154	A-4
D155	A-5
D156	A-6
D157	A-6
D158	B-7
R151	B-4
R152	B-4
R153	B-4
R154	B-4
R155	B-4
R156	B-5
R157	B-5
R159	B-5
R160	B-5
R161	B-5
R162	B-5
R163	B-4
R164	B-4
RV151	A-8
S151	A-1
S152	A-2
S153	A-3
S154	A-4
S155	A-5
S156	A-6
S157	A-6
S158	B-1
S159	B-2

FK-67 (FUNCTION KEY) SCHEMATIC DIAGRAM

— Ref No. FK-67 BOARD: 3,000 series —


1
2
3
4
5
A
B
C
D
E
FK-67 BOARD
CN151 8P (C-5)
BACK_KEY_AD1 8
KEY_AD0 7
KEY_AD1 6
ZOOM_SW 5
D3.2V 4
LED_ON 3
CHARGE_LED 2
REG_GND 1
TO
HI-40 BOARD(3/3)
CN503 ① - ⑧ pin
(SEE PAGE 4-76)
STOP ■
S151
R163 10K
D151 (A-1)
SML-211YT-T86
(STOP ■)
PAUSE ❚❚
R164 10k
S155
D155 (A-5)
SML-211YT-T86
(❚❚ PAUSE)
VTR REC MODEL:CCD-TR2300E/TR3300E(E, AUS)
EASY CONNECTOR MODEL:CCD-TR2200E/TR3300E, CCB86
09

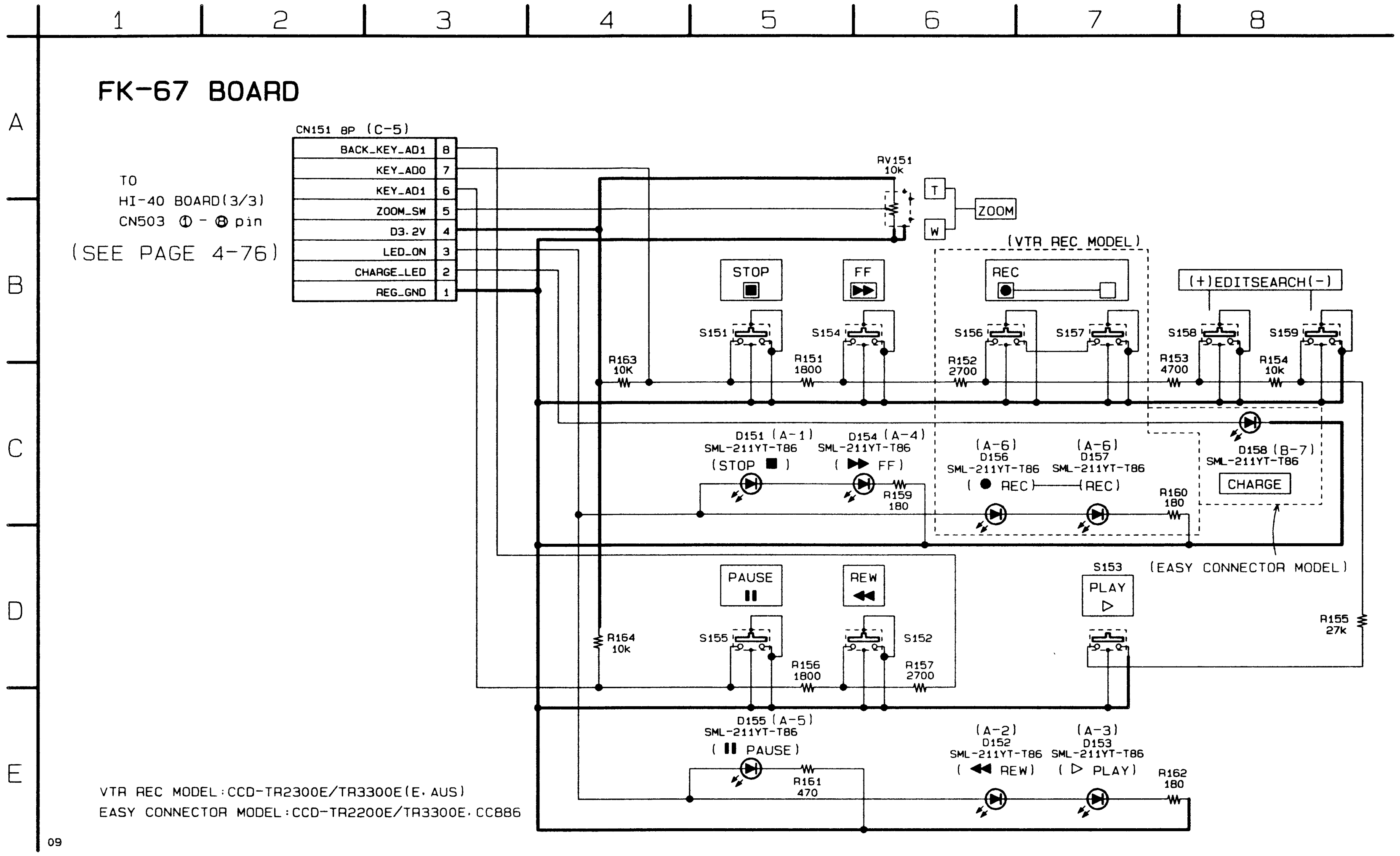



CHARGE
D158
ZOOM
T
RV151
(● REC)
D156
(REC□)
D157
S156
REC
S157
REC
ZOOM
W
1-660-361-
11
6
7
8

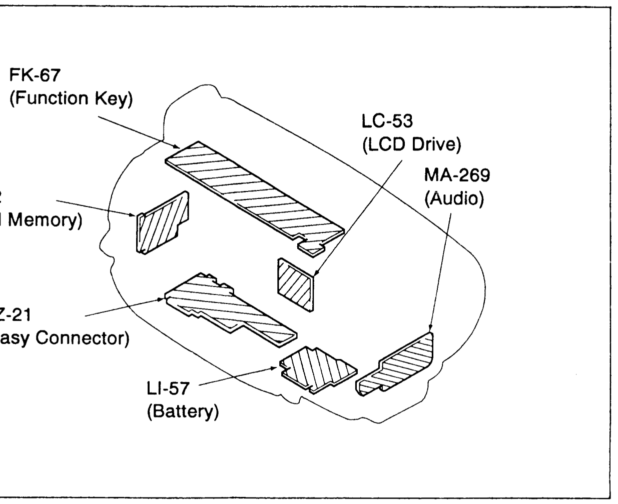
FK-67 BOARD	
CN151	C-5
D151	A-1
D152	A-2
D153	A-3
D154	A-4
D155	A-5
D156	A-6
D157	A-6
D158	B-7
R151	B-4
R152	B-4
R153	B-4
R154	B-4
R155	B-4
R156	B-5
R157	B-5
R159	B-5
R160	B-5
R161	B-5
R162	B-5
R163	B-4
R164	B-4
RV151	A-8
S151	A-1
S152	A-2
S153	A-3
S154	A-4
S155	A-5
S156	A-6
S157	A-6
S158	B-1
S159	B-2

FK-67 (FUNCTION KEY) SCHEMATIC DIAGRAM

— Ref No. FK-67 BOARD: 3,000 series —


1
2
3
4
5
6
7
8
A
B
C
D
E
FK-67 BOARD
CN151 8P (C-5)
BACK_KEY_AD1 8
KEY_AD0 7
KEY_AD1 6
ZOOM_SW 5
D3.2V 4
LED_ON 3
CHARGE_LED 2
REG_GND 1
TO
HI-40 BOARD(3/3)
CN503 ① - ⑧ pin
(SEE PAGE 4-76)
RV151
10k
T
W
ZOOM
(VTR REC MODEL)
STOP
FF
REC
(+)EDITSEARCH(-)
S151
S154
S156
S157
S158
S159
R163 10K
R151 1800
R152 2700
R153 4700
R154 10k
D151 (A-1) SML-211YT-T86 (STOP ■)
D154 (A-4) SML-211YT-T86 (▶▶ FF)
(A-6) D156 SML-211YT-T86 (● REC)
(A-6) D157 SML-211YT-T86 (REC)
D158 (B-7) SML-211YT-T86
CHARGE
R159 180
R160 180
(EASY CONNECTOR MODEL)
PAUSE
REW
S153 PLAY
S155
S152
R164 10k
R156 1800
R157 2700
R155 27k
D155 (A-5) SML-211YT-T86 (II PAUSE)
R161 470
(A-2) D152 SML-211YT-T86 (◀◀ REW)
(A-3) D153 SML-211YT-T86 (▷ PLAY)
R162 180
09

VTR REC MODEL:CCD-TR2300E/TR3300E(E, AUS)
EASY CONNECTOR MODEL:CCD-TR2200E/TR3300E, CCB86

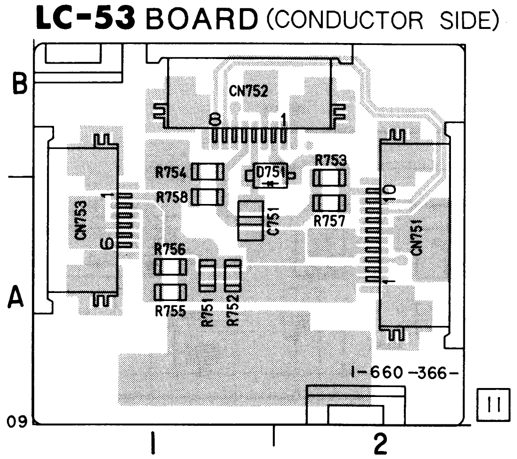

FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
Memory)
Z-21
asy Connector)
LI-57
(Battery)

MC-Service

LC-53 (LCD DRIVE) PRINTED WIRING BOARD

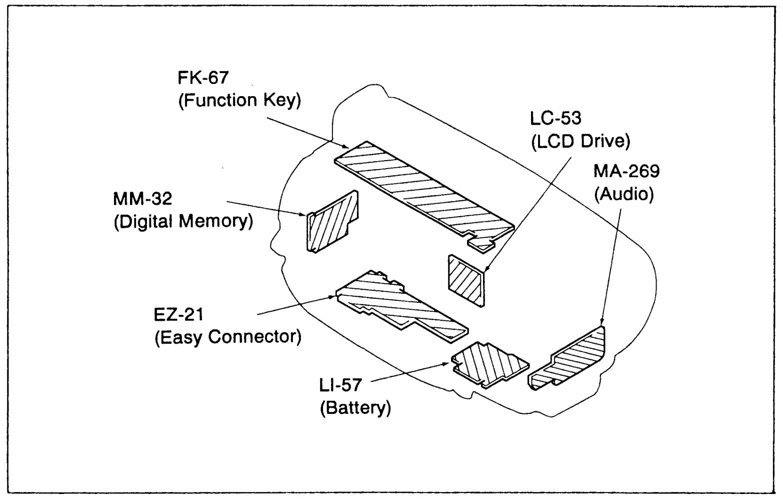
— Ref No. LC-53 BOARD: 7,000 series —

LC-53 BOARD	
C751	A-1
CN751	A-2
CN752	B-1
CN753	A-1
D751	B-1
R751	A-1
R752	A-1
R753	B-2
R754	B-1
R755	A-1


LC-53 BOARD (CONDUCTOR SIDE)
B
A
CN752
8
1
R754
R758
D751
R753
R757
C751
CN753
6
1
10
CN751
R756
R755
R751
R752
1-660-366-
11
09
1
2

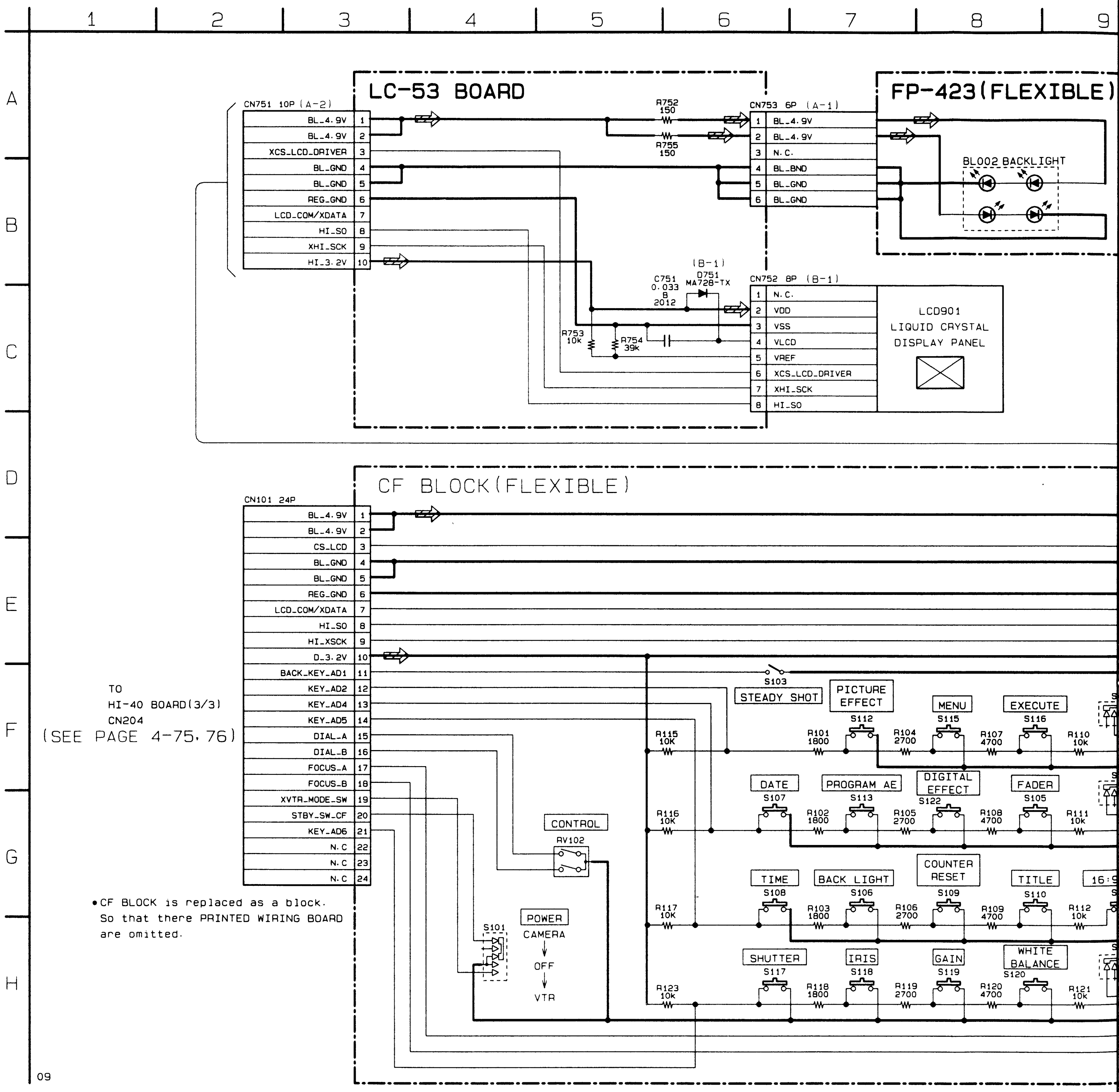
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

There are few cases that the part isn't mounted in this model is printed on this diagram.


FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
MM-32
(Digital Memory)
EZ-21
(Easy Connector)
LI-57
(Battery)

LC-53 (LCD DRIVE), CF BLOCK (FUNCTION KEY) SCHEMATIC DIAGRAMS

— Ref No. LC-53 BOARD and CF BLOCK FLEXIBLE BOARD: 7,000 series —


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
LC-53 BOARD
FP-423(FLEXIBLE)
CN751 10P (A-2)
BL_4.9V
BL_4.9V
XCS_LCD_DRIVER
BL_GND
BL_GND
REG_GND
LCD_COM/XDATA
HI_SO
XHI_SCK
HI_3.2V
R752 150
R755 150
CN753 6P (A-1)
BL_4.9V
BL_4.9V
N.C.
BL_GND
BL_GND
BL_GND
BL002 BACKLIGHT
(B-1)
C751 0.033 B 2012
D751 MA728-TX
CN752 8P (B-1)
N.C.
VDD
VSS
VLCD
VREF
XCS_LCD_DRIVER
XHI_SCK
HI_SO
R753 10k
R754 39k
LCD901
LIQUID CRYSTAL
DISPLAY PANEL
CF BLOCK(FLEXIBLE)
CN101 24P
BL_4.9V
BL_4.9V
CS_LCD
BL_GND
BL_GND
REG_GND
LCD_COM/XDATA
HI_SO
HI_XSCK
D_3.2V
BACK_KEY_AD1
KEY_AD2
KEY_AD4
KEY_AD5
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_MODE_SW
STBY_SW_CF
KEY_AD6
N.C
N.C
N.C
TO
HI-40 BOARD(3/3)
CN204
(SEE PAGE 4-75, 76)
S103
STEADY SHOT
PICTURE EFFECT
S112
MENU
S115
EXECUTE
S116
R115 10K
R101 1800
R104 2700
R107 4700
R110 10k
DATE
S107
PROGRAM AE
S113
DIGITAL EFFECT
S122
FADER
S105
R116 10K
R102 1800
R105 2700
R108 4700
R111 10k
CONTROL
RV102
TIME
S108
BACK LIGHT
S106
COUNTER RESET
S109
TITLE
S110
16:9
R117 10K
R103 1800
R106 2700
R109 4700
R112 10k
POWER
S101
CAMERA
OFF
VTR
SHUTTER
S117
IRIS
S118
GAIN
S119
WHITE BALANCE
S120
R123 10K
R118 1800
R119 2700
R120 4700
R121 10k
09

•CF BLOCK is replaced as a block.
So that there PRINTED WIRING BOARD
are omitted.

RD

R SIDE)

366-

II

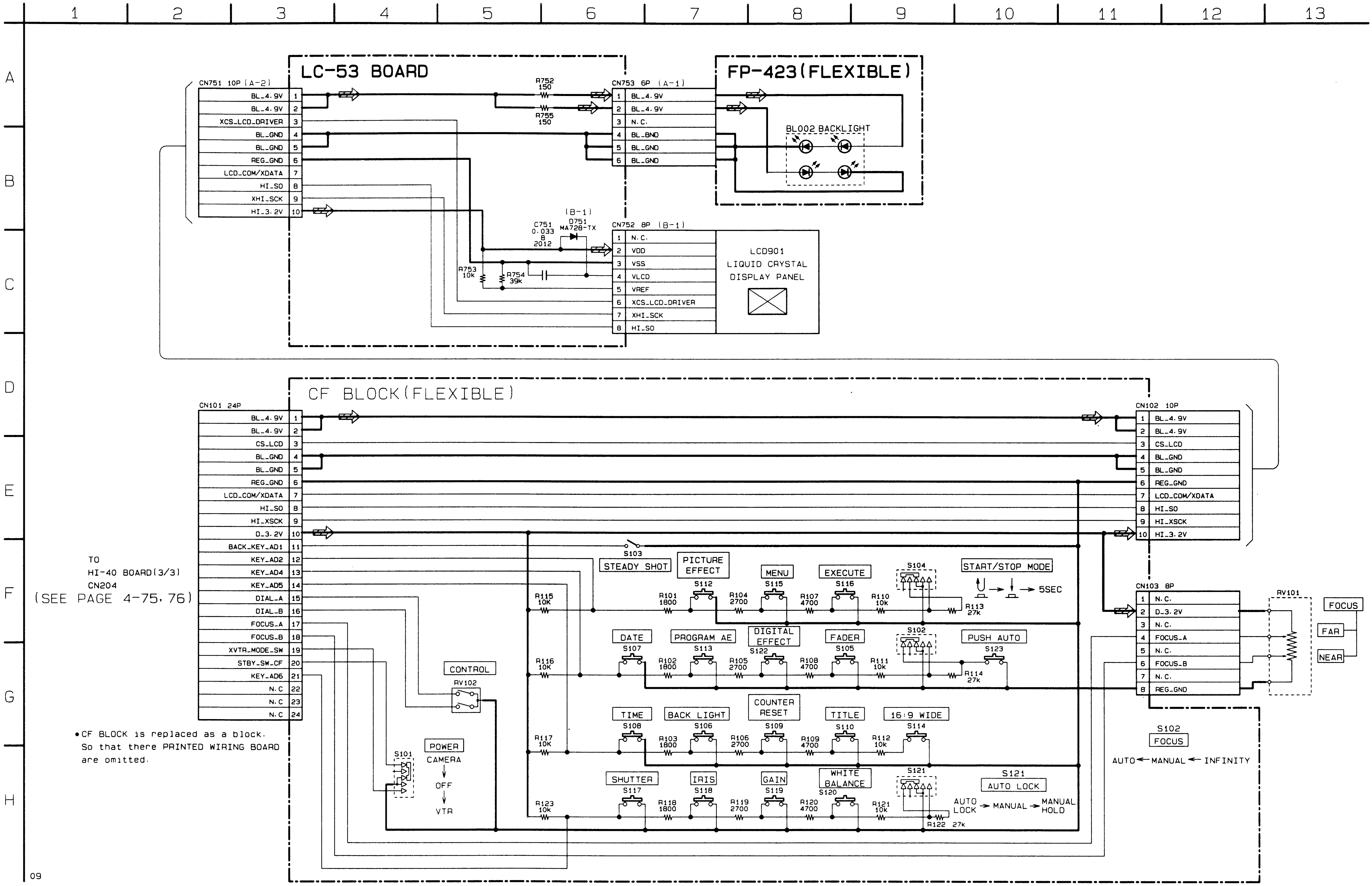
he patterns
iagram.

in this model is

e)
-269
udio)

LC-53 (LCD DRIVE), CF BLOCK (FUNCTION KEY) SCHEMATIC DIAGRAMS

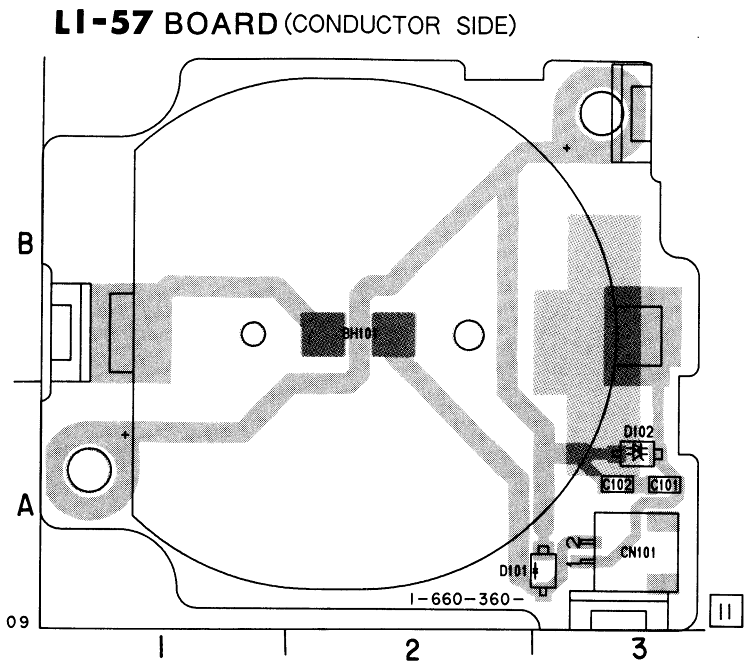
— Ref No. LC-53 BOARD and CF BLOCK FLEXIBLE BOARD: 7,000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
LC-53 BOARD
FP-423(FLEXIBLE)
CN751 10P (A-2)
BL_4.9V 1
BL_4.9V 2
XCS_LCD_DRIVER 3
BL_GND 4
BL_GND 5
REG_GND 6
LCD_COM/XDATA 7
HI_SO 8
XHI_SCK 9
HI_3.2V 10
R752 150
R755 150
CN753 6P (A-1)
1 BL_4.9V
2 BL_4.9V
3 N.C.
4 BL_GND
5 BL_GND
6 BL_GND
BL002 BACKLIGHT
(B-1)
C751 0.033 B 2012
D751 MA728-TX
R753 10k
R754 39k
CN752 8P (B-1)
1 N.C.
2 VDD
3 VSS
4 VLCD
5 VREF
6 XCS_LCD_DRIVER
7 XHI_SCK
8 HI_SO
LCD901
LIQUID CRYSTAL
DISPLAY PANEL
CF BLOCK(FLEXIBLE)
CN101 24P
BL_4.9V 1
BL_4.9V 2
CS_LCD 3
BL_GND 4
BL_GND 5
REG_GND 6
LCD_COM/XDATA 7
HI_SO 8
HI_XSCK 9
D_3.2V 10
BACK_KEY_AD1 11
KEY_AD2 12
KEY_AD4 13
KEY_AD5 14
DIAL_A 15
DIAL_B 16
FOCUS_A 17
FOCUS_B 18
XVTR_MODE_SW 19
STBY_SW_CF 20
KEY_AD6 21
N.C 22
N.C 23
N.C 24
TO
HI-40 BOARD(3/3)
CN204
(SEE PAGE 4-75, 76)
CN102 10P
1 BL_4.9V
2 BL_4.9V
3 CS_LCD
4 BL_GND
5 BL_GND
6 REG_GND
7 LCD_COM/XDATA
8 HI_SO
9 HI_XSCK
10 HI_3.2V
S103
STEADY SHOT
PICTURE EFFECT
S112
MENU
S115
EXECUTE
S116
S104
START/STOP MODE
5SEC
R115 10K
R101 1800
R104 2700
R107 4700
R110 10k
R113 27k
CN103 8P
1 N.C.
2 D_3.2V
3 N.C.
4 FOCUS_A
5 N.C.
6 FOCUS_B
7 N.C.
8 REG_GND
RV101
FOCUS
FAR
NEAR
CONTROL
RV102
DATE
S107
PROGRAM AE
S113
DIGITAL EFFECT
S122
FADER
S105
S102
PUSH AUTO
S123
R116 10K
R102 1800
R105 2700
R108 4700
R111 10k
R114 27k
TIME
S108
BACK LIGHT
S106
COUNTER RESET
S109
TITLE
S110
16:9 WIDE
S114
R117 10K
R103 1800
R106 2700
R109 4700
R112 10k
S101
POWER
CAMERA
OFF
VTR
S102
FOCUS
AUTO ← MANUAL ← INFINITY
SHUTTER
S117
IRIS
S118
GAIN
S119
WHITE BALANCE
S120
S121
S121
AUTO LOCK
AUTO LOCK → MANUAL → MANUAL HOLD
R123 10K
R118 1800
R119 2700
R120 4700
R121 10k
R122 27k
09

•CF BLOCK is replaced as a block.
So that there PRINTED WIRING BOARD are omitted.

LI-57 (BATTERY) PRINTED WIRING BOARD

— Ref No. LI-57 BOARD: 3,000 series —


LI-57 BOARD (CONDUCTOR SIDE)
BH101
D102
C102
C101
D101
CN101
1-660-360-
II
A
B
09
1
2
3

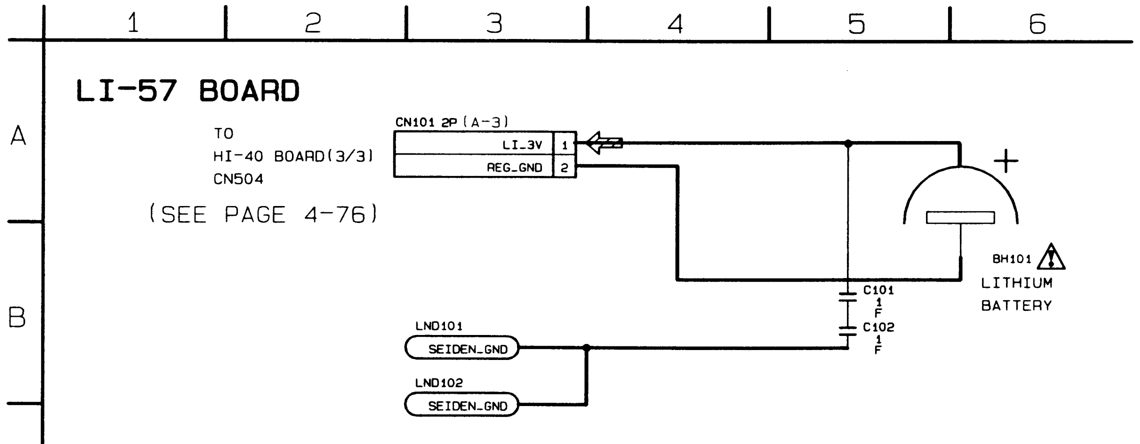
LI-57 BOARD	
BH101	B-2
C101	A-3
C102	A-3
CN101	A-3

- ▨ : pattern from the side which enables seeing.
- ░ : pattern of the rear side.

There are few cases that the part isn't mounted in this model is printed on this diagram.

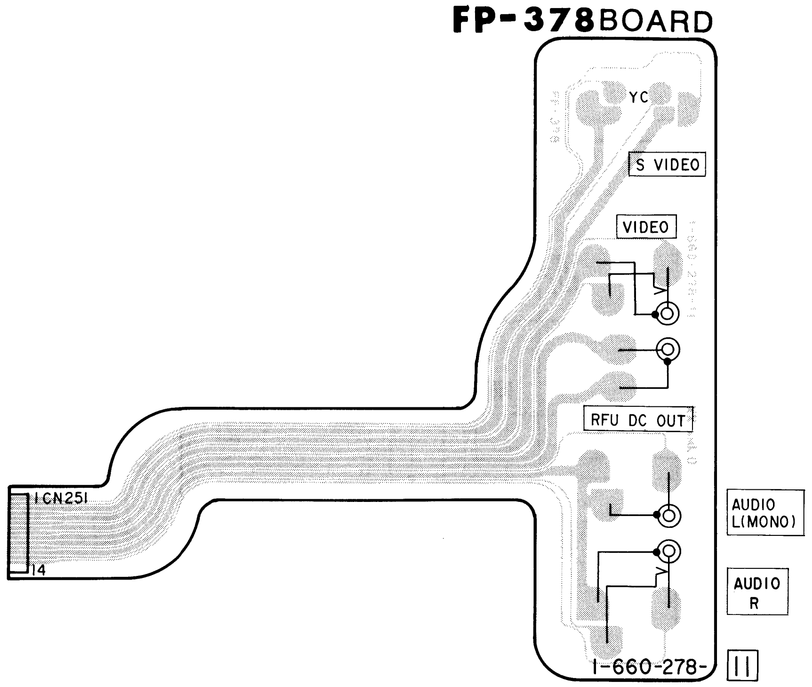
LI-57 (BATTERY) SCHEMATIC DIAGRAM

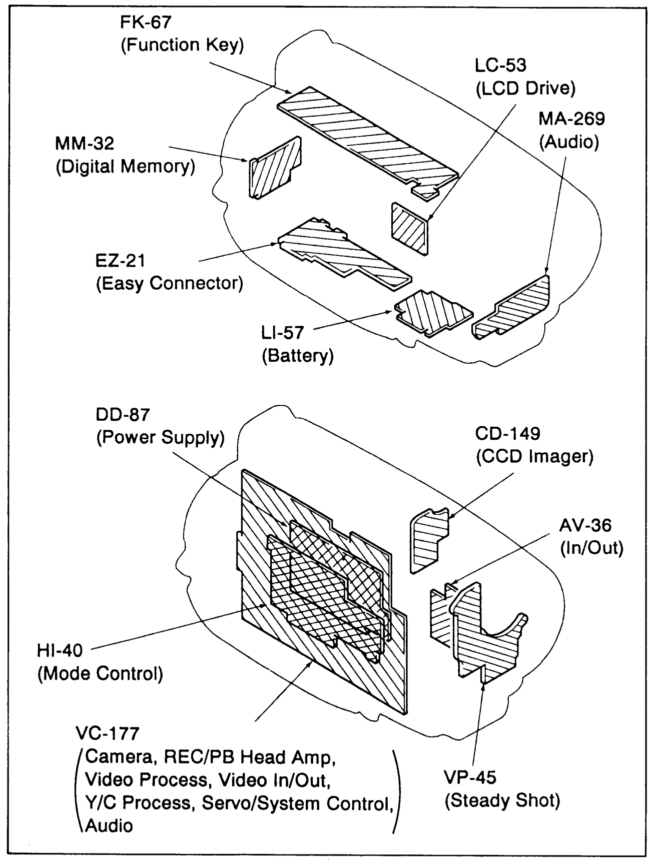
— Ref No. LI-57 BOARD: 3,000 series —


1
2
3
4
5
6
A
B
C
09
LI-57 BOARD
TO
HI-40 BOARD(3/3)
CN504
(SEE PAGE 4-76)
CN101 2P (A-3)
LI_3V 1
REG_GND 2
+
BH101
LITHIUM
BATTERY
C101
1
F
C102
1
F
LND101
SEIDEN_GND
LND102
SEIDEN_GND

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

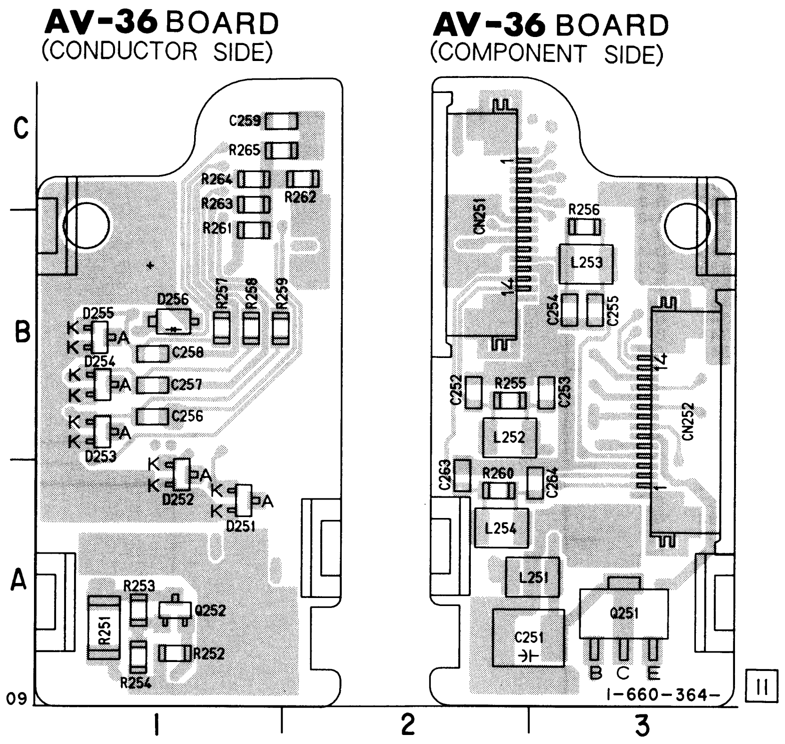
FP-378 (JACK) FLEXIBLE BOARD


FP-378 BOARD
YC
S VIDEO
VIDEO
RFU DC OUT
AUDIO L(MONO)
AUDIO R
CN251
14
1-660-278-
II


FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
MM-32
(Digital Memory)
EZ-21
(Easy Connector)
LI-57
(Battery)
DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
VP-45
(Steady Shot)

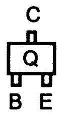
AV-36 (IN/OUT) PRINTED WIRING BOARD

— Ref No. AV-36 BOARD: 3,000 series —


AV-36 BOARD
(CONDUCTOR SIDE)
AV-36 BOARD
(COMPONENT SIDE)
C259
R265
R264
R263
R262
R261
D256
R257
R258
R259
D255
D254
C258
C257
C256
D253
D252
D251
R253
Q252
R251
R252
R254
CN251
R256
L253
C254
C255
C252
R255
C253
L252
CN252
C263
R260
C264
L254
L251
C251
Q251
B C E
1-660-364-
II
A
B
C
09
1
2
3

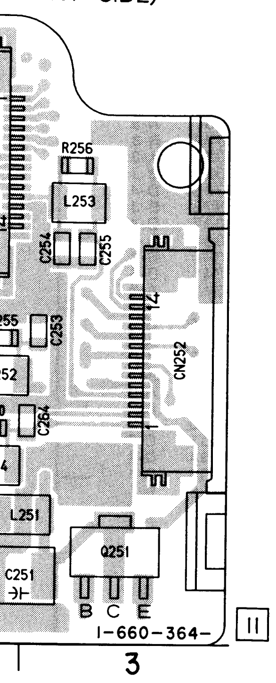
AV-36 BOARD	
C251	A-2
C252	B-2
C253	B-3
C254	B-3
C255	B-3
C263	A-2
C264	A-3
CN251	B-2
CN252	B-3
D251	A-1
D252	A-1
D253	B-1
D254	B-1
D255	B-1
D256	B-1
L251	A-3
L252	B-2
L253	B-3
L254	A-2
Q251	A-3
Q252	A-1
R251	A-1
R252	A-1
R253	A-1
R254	A-1
R255	B-2
R256	B-3
R257	B-1
R258	B-1
R259	B-2
R260	A-2
R261	B-1
R262	C-2
R263	C-1
R264	C-1

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

36 BOARD
ONENT SIDE)


R256
L253
C254
C255
C253
CN252
14
1
C264
L251
Q251
C251
B C E
1-660-364-
II
3

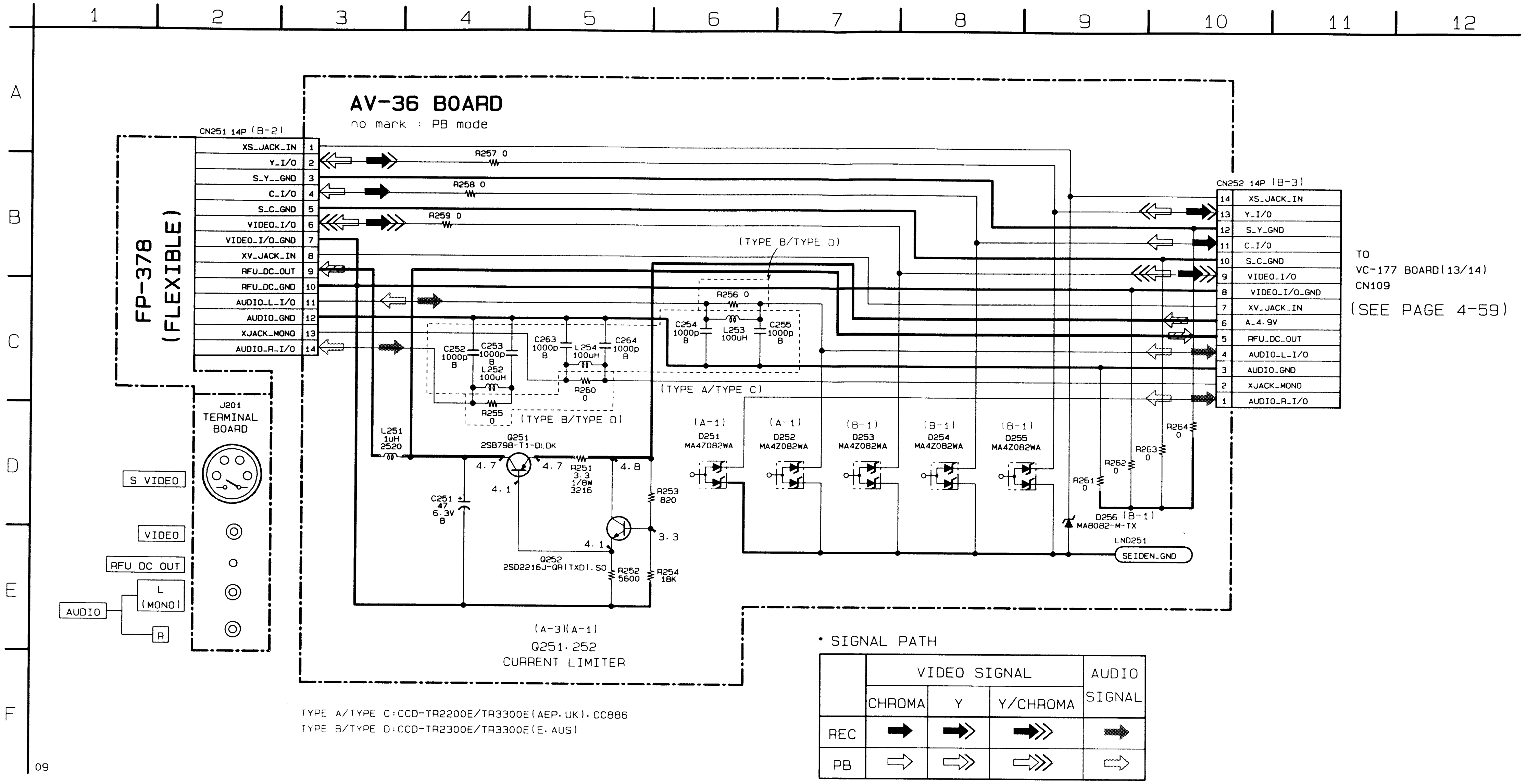
AV-36	BOARD
C251	A-2
C252	B-2
C253	B-3
C254	B-3
C255	B-3
C263	A-2
C264	A-3
CN251	B-2
CN252	B-3
D251	A-1
D252	A-1
D253	B-1
D254	B-1
D255	B-1
D256	B-1
L251	A-3
L252	B-2
L253	B-3
L254	A-2
Q251	A-3
Q252	A-1
R251	A-1
R252	A-1
R253	A-1
R254	A-1
R255	B-2
R256	B-3
R257	B-1
R258	B-1
R259	B-2
R260	A-2
R261	B-1
R262	C-2
R263	C-1
R264	C-1

patterns
gram.

this model is

AV-36 (IN/OUT), FP-378 (JACK) SCHEMATIC DIAGRAMS

— Ref No. AV-36 BOARD and FP-378 FLEXIBLE BOARD: 3,000 series —


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
AV-36 BOARD
no mark : PB mode
FP-378 (FLEXIBLE)
CN251 14P (B-2)
XS_JACK_IN 1
Y_I/O 2
S_Y__GND 3
C_I/O 4
S_C_GND 5
VIDEO_I/O 6
VIDEO_I/O_GND 7
XV_JACK_IN 8
RFU_DC_OUT 9
RFU_DC_GND 10
AUDIO_L_I/O 11
AUDIO_GND 12
XJACK_MONO 13
AUDIO_R_I/O 14
R257 0
R258 0
R259 0
(TYPE B/TYPE D)
R256 0
C254 1000p B
L253 100uH
C255 1000p B
C252 1000p B
C253 1000p B
L252 100uH
C263 1000p B
L254 100uH
C264 1000p B
R260 0
R255 0
(TYPE B/TYPE D)
(TYPE A/TYPE C)
J201 TERMINAL BOARD
S VIDEO
VIDEO
RFU DC OUT
AUDIO
L (MONO)
R
L251 1uH 2520
Q251 2SB798-T1-DLDK
4.7
4.7
R251 3.3 1/8W 3216
4.8
4.1
C251 47 6.3V B
R253 820
3.3
4.1
Q252 2SD2216J-QR(TXD).SO
R252 5600
R254 18K
(A-3)(A-1)
Q251, 252
CURRENT LIMITER
(A-1) D251 MA4Z082WA
(A-1) D252 MA4Z082WA
(B-1) D253 MA4Z082WA
(B-1) D254 MA4Z082WA
(B-1) D255 MA4Z082WA
R261 0
R262 0
R263 0
R264 0
D256 (B-1) MA8082-M-TX
LND251
SEIDEN_GND
CN252 14P (B-3)
14 XS_JACK_IN
13 Y_I/O
12 S_Y_GND
11 C_I/O
10 S_C_GND
9 VIDEO_I/O
8 VIDEO_I/O_GND
7 XV_JACK_IN
6 A_4.9V
5 RFU_DC_OUT
4 AUDIO_L_I/O
3 AUDIO_GND
2 XJACK_MONO
1 AUDIO_R_I/O
TO
VC-177 BOARD(13/14)
CN109
(SEE PAGE 4-59)
09

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

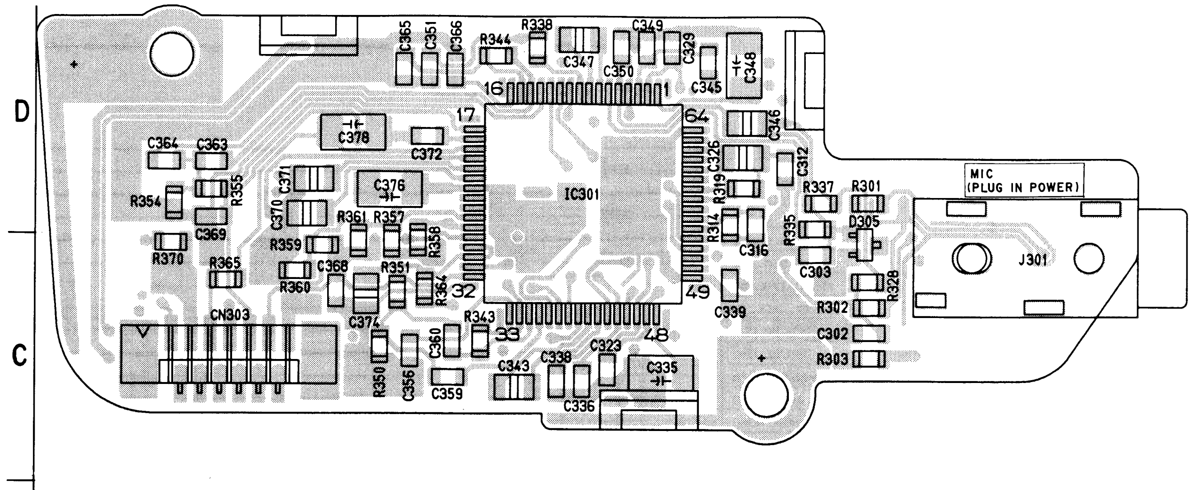
TYPE A/TYPE C:CCD-TR2200E/TR3300E(AEP,UK),CC886
TYPE B/TYPE D:CCD-TR2300E/TR3300E(E,AUS)

MC-Service

MA-269 (AUDIO) PRINTED WIRING BOARD

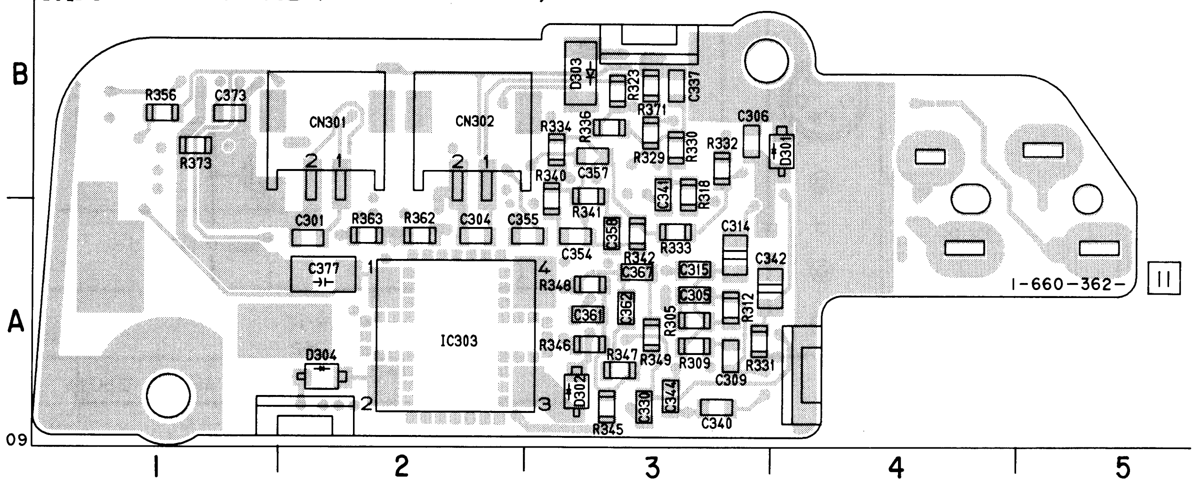
— Ref No. MA-269 BOARD: 4,000 series —

MA-269 BOARD (CONDUCTOR SIDE)



D
C
B
IC301
J301
CN303
MIC (PLUG IN POWER)
C364
C363
R354
R355
C369
R370
R365
C378
C372
C376
R361
R357
R359
R360
C368
R351
C374
R343
C343
C338
C323
C335
C336
C339
C316
C303
R302
C302
R303
R328
R337
R301
D305
R335
R314
R319
C326
C312
C346
C345
C348
C329
C349
C350
C347
R338
R344
C366
C351
C365
C356
C360
R350
C359
C371
C370
R364
R358
16
17
32
33
48
49
64

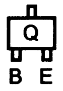
MA-269 BOARD (COMPONENT SIDE)



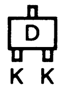
B
A
09
R356
C373
R373
CN301
CN302
R334
R336
D303
R323
R371
C337
C306
D301
R330
R332
R329
R340
C357
R341
C301
R363
R362
C304
C355
C354
C358
R342
C367
R333
C314
C342
C377
IC303
R348
C361
C362
C315
C305
R312
R305
R346
R347
R349
R309
R331
C309
D304
D302
R339
C344
C340
R345
1-660-362-
11
1
2
3
4
5

MA-269 BOARD	
C302	C-4
C303	C-4
C314	A-3
C315	A-3
C323	C-3
C326	D-3
C329	D-3
C330	A-3
C335	C-3
C336	C-3
C337	B-3
C338	C-3
C339	C-3
C340	C-3
C341	C-3
C342	A-4
C343	C-2
C344	A-3
C345	D-3
C346	D-3
C347	D-3
C348	D-3
C349	D-3
C351	D-2
C354	A-3
C355	A-3
C356	C-2
C357	B-3
C358	A-3
C359	C-2
C360	C-2
C361	A-3
C362	A-3
C363	D-1
C364	D-1
C365	D-2
C366	D-2
C367	A-3
C368	C-2
C369	D-1
C370	D-2
C371	D-2
C372	D-2
C376	D-2
C377	A-2
C378	D-2
CN301	B-2
CN302	B-2
CN303	C-1
D303	B-3
D304	A-2
D305	C-4
IC301	D-3
IC303	A-2
J301	C-5
R301	D-4
R302	C-4
R303	C-4
R312	A-3
R314	D-3
R318	B-3
R319	D-3
R323	B-3
R328	C-4
R330	B-3
R331	A-3
R332	B-3
R333	A-3
R334	B-3
R335	D-4
R336	B-3
R337	D-4
R338	D-3
R340	B-3
R341	B-3
R342	A-3
R343	C-2
R344	D-2
R345	A-3
R346	A-3
R347	A-3
R348	A-3
R349	A-3
R350	C-2
R351	C-2
R354	D-1
R355	D-1
R356	B-1
R357	C-2
R358	C-2
R362	A-2
R363	A-2
R364	C-2
R365	C-1
R370	C-1
R371	B-3
R373	B-1

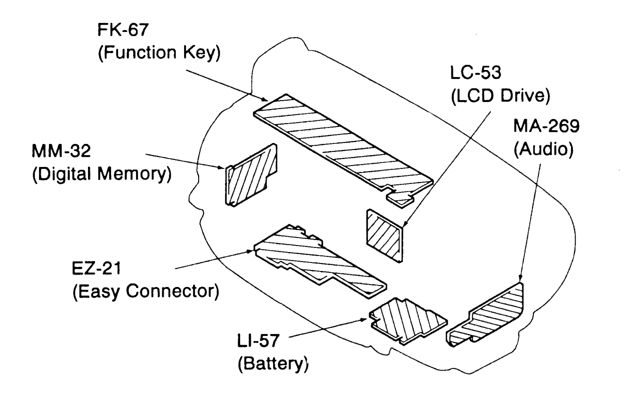
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



- Chip diode



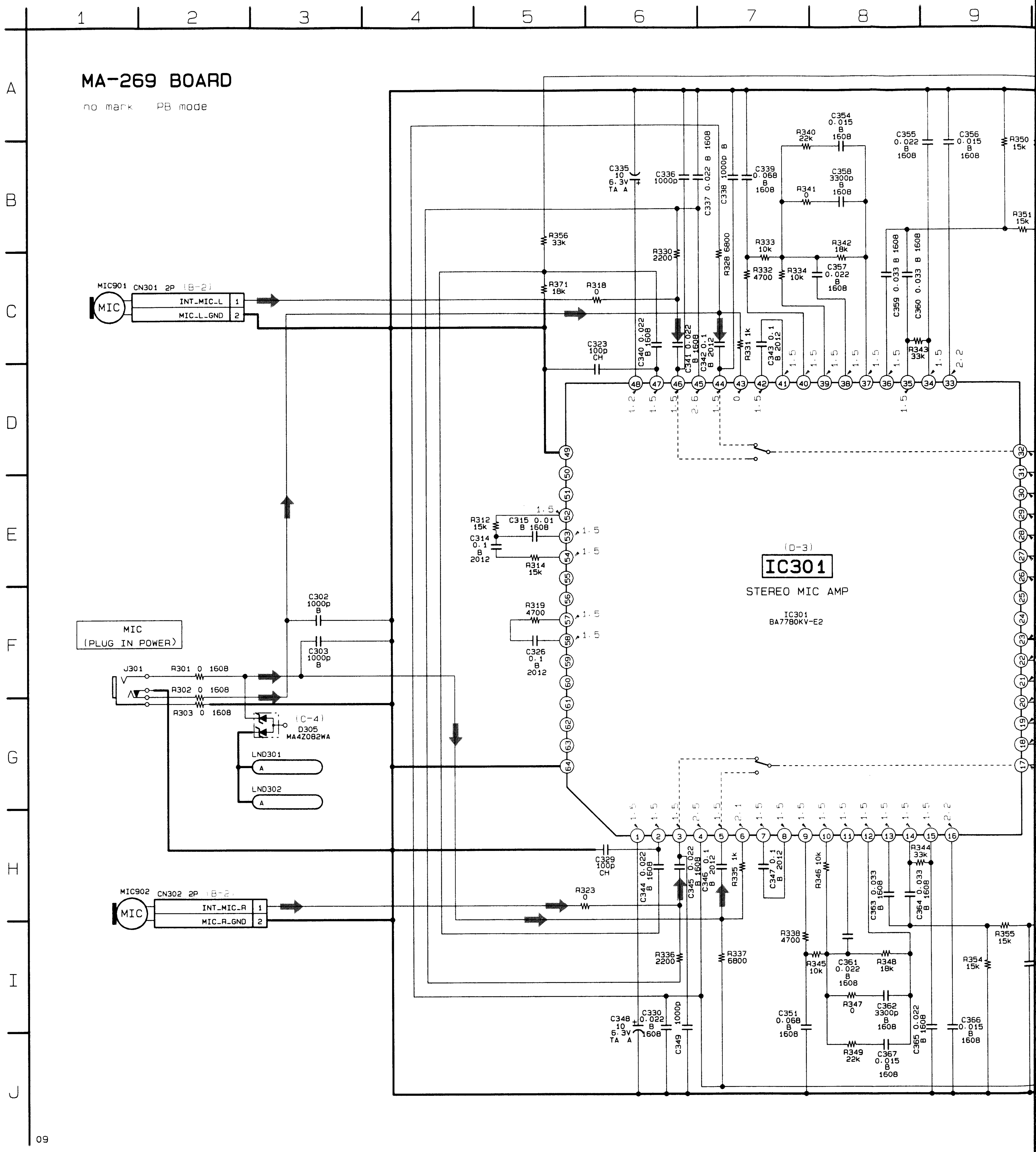
There are few cases that the part isn't mounted in this model is printed on this diagram.



FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
MM-32
(Digital Memory)
EZ-21
(Easy Connector)
LI-57
(Battery)

MA-269 (AUDIO) SCHEMATIC DIAGRAM

— Ref No. MA-269 BOARD: 4,000 series —



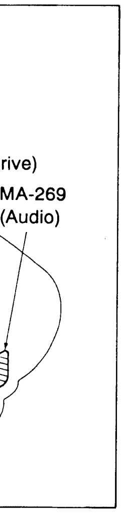
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
MA-269 BOARD
no mark PB mode
MIC901
CN301 2P (B-2)
INT_MIC_L
MIC_L_GND
MIC
(PLUG IN POWER)
J301
R301 0 1608
R302 0 1608
R303 0 1608
(C-4)
D305
MA4Z082WA
LND301
LND302
C302 1000p B
C303 1000p B
MIC902
CN302 2P (B-2)
INT_MIC_R
MIC_R_GND
R323 0
(D-3)
IC301
STEREO MIC AMP
IC301 BA7780KV-E2
R312 15k
C315 0.01 B 1608
C314 0.1 B 2012
R314 15k
R319 4700
C326 0.1 B 2012
C323 100p CH
C329 100p CH
R356 33k
R371 18k
R318 0
C335 10 6.3V TA A
C336 1000p
C337 0.022 B 1608
C338 1000p B
C339 0.068 B 1608
R328 6800
R330 2200
R340 22k
C354 0.015 B 1608
C358 3300p B 1608
R341 0
R333 10k
R332 4700
R334 10k
C357 0.022 B 1608
R342 18k
C355 0.022 B 1608
C356 0.015 B 1608
R350 15k
R351 15k
C359 0.033 B 1608
C360 0.033 B 1608
R343 33k
C340 0.022 B 1608
C341 0.022 B 1608
C342 0.1 B 2012
R331 1k
C343 0.1 B 2012
C344 0.022 B 1608
C345 0.022 B 1608
C346 0.1 B 2012
R335 1k
C347 0.1 B 2012
R346 10k
C363 0.033 B 1608
C364 0.033 B 1608
R344 33k
R355 15k
R354 15k
R336 2200
R337 6800
R338 4700
R345 10k
C361 0.022 B 1608
R348 18k
R347 0
C362 3300p B 1608
C351 0.068 B 1608
C365 0.022 B 1608
C366 0.015 B 1608
R349 22k
C367 0.015 B 1608
C348 10 6.3V TA A
C330 0.022 B 1608
C349 1000p
09

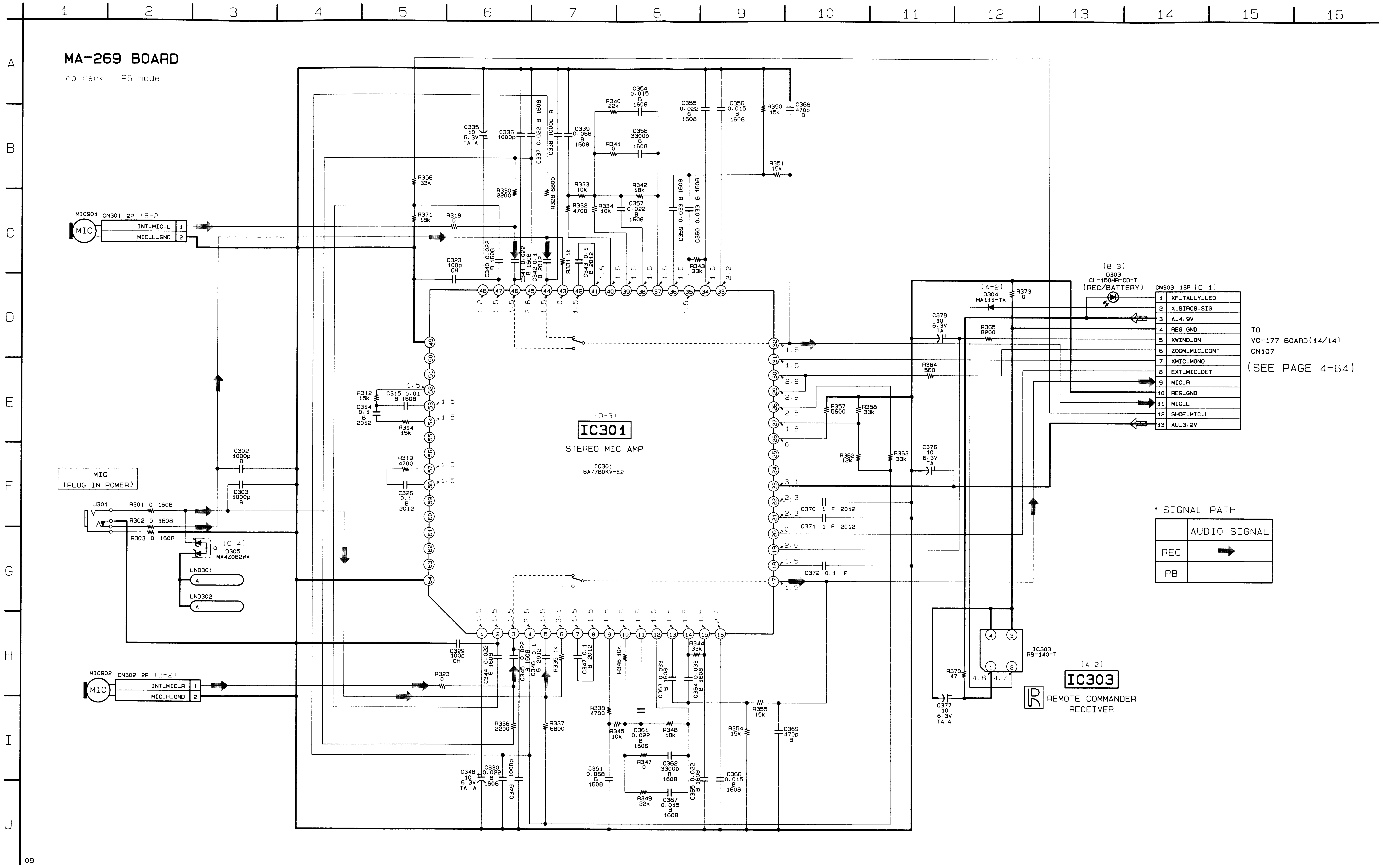
MA-269 (AUDIO) SCHEMATIC DIAGRAM

— Ref No. MA-269 BOARD: 4,000 series —

MA-269 BOARD

C302	C-4
C303	C-4
C314	A-3
C315	A-3
C323	C-3
C326	D-3
C329	D-3
C330	A-3
C335	C-3
C336	C-3
C337	B-3
C338	C-3
C339	C-3
C340	C-3
C341	C-3
C342	A-4
C343	C-2
C344	A-3
C345	D-3
C346	D-3
C347	D-3
C348	D-3
C349	D-3
C351	D-2
C354	A-3
C355	A-3
C356	C-2
C357	B-3
C358	A-3
C359	C-2
C360	C-2
C361	A-3
C362	A-3
C363	D-1
C364	D-1
C365	D-2
C366	D-2
C367	A-3
C368	C-2
C369	D-1
C370	D-2
C371	D-2
C372	D-2
C376	D-2
C377	A-2
C378	D-2
CN301	B-2
CN302	B-2
CN303	C-1
D303	B-3
D304	A-2
D305	C-4
IC301	D-3
IC303	A-2
J301	C-5
R301	D-4
R302	C-4
R303	C-4
R312	A-3
R314	D-3
R318	B-3
R319	D-3
R323	B-3
R328	C-4
R330	B-3
R331	A-3
R332	B-3
R333	A-3
R334	B-3
R335	D-4
R336	B-3
R337	D-4
R338	D-3
R340	B-3
R341	B-3
R342	A-3
R343	C-2
R344	D-2
R345	A-3
R346	A-3
R347	A-3
R348	A-3
R349	A-3
R350	C-2
R351	C-2
R354	D-1
R355	D-1
R356	B-1
R357	C-2
R358	C-2
R362	A-2
R363	A-2
R364	C-2
R365	C-1
R370	C-1
R371	B-3
R373	B-1

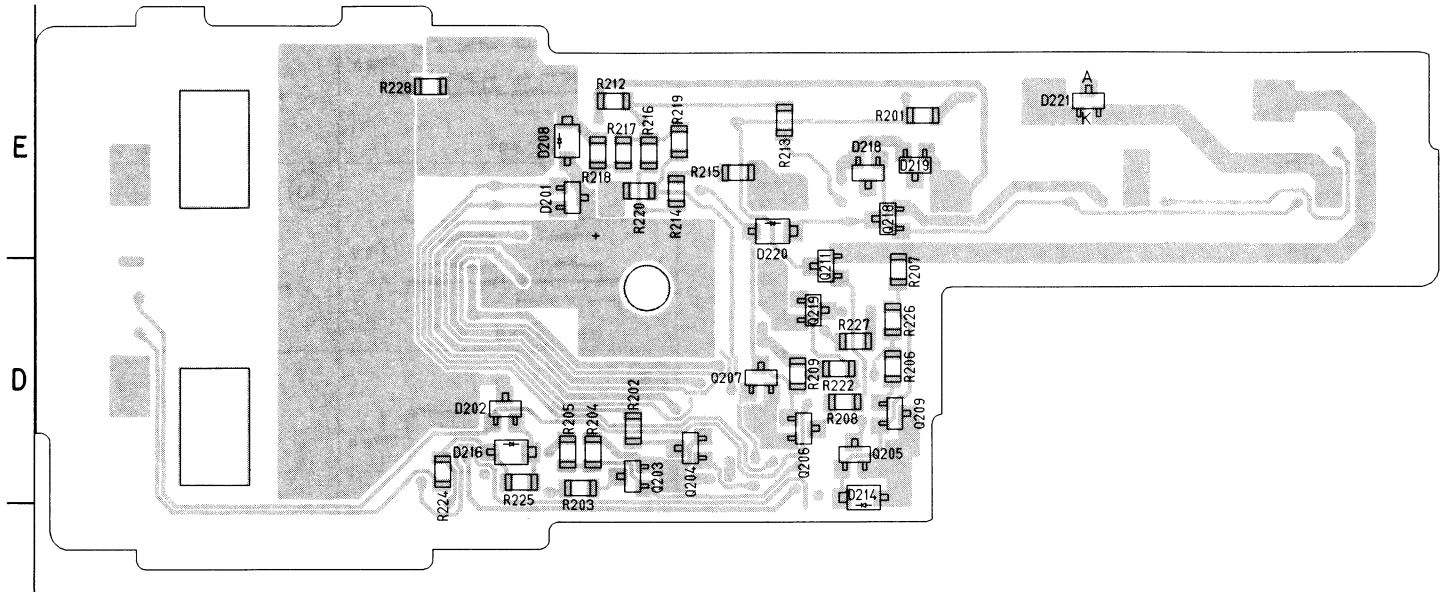

rive)
MA-269
(Audio)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
MA-269 BOARD
no mark : PB mode
MIC901 CN301 2P (B-2)
MIC
INT_MIC_L 1
MIC_L_GND 2
MIC
(PLUG IN POWER)
J301
R301 0 1608
R302 0 1608
R303 0 1608
C302 1000p B
C303 1000p B
(C-4) D305 MA4Z082WA
LND301 A
LND302 A
MIC902 CN302 2P (B-2)
MIC
INT_MIC_R 1
MIC_R_GND 2
R356 33k
R371 18k
R318 0
C323 100p CH
C335 10 6.3V TA A
C336 1000p
C337 0.022 B 1608
C338 1000p B
R330 2200
R328 6800
C340 0.022 B 1608
C341 0.022 B 1608
C342 0.1 B 2012
R331 1k
C343 0.1 B 2012
R340 22k
C354 0.015 B 1608
C339 0.068 B 1608
R341 0
C358 3300p B 1608
R333 10k
R342 18k
R332 4700
R334 10k
C357 0.022 B 1608
C355 0.022 B 1608
C356 0.015 B 1608
C359 0.033 B 1608
C360 0.033 B 1608
R343 33k
R350 15k
C368 470p B
R351 15k
R312 15k
C315 0.01 B 1608
C314 0.1 B 2012
R314 15k
R319 4700
C326 0.1 B 2012
(D-3)
IC301
STEREO MIC AMP
IC301 BA7780KV-E2
C329 100p CH
C344 0.022 B 1608
C345 0.022 B 1608
C346 0.1 B 2012
R335 1k
C347 0.1 B 2012
R346 10k
C363 0.033 B 1608
C364 0.033 B 1608
R344 33k
R323 0
R336 2200
R337 6800
R338 4700
R345 10k
C361 0.022 B 1608
R348 18k
R347 0
C362 3300p B 1608
C351 0.068 B 1608
R349 22k
C367 0.015 B 1608
C365 0.022 B 1608
C366 0.015 B 1608
R355 15k
R354 15k
C369 470p B
C348 10 6.3V TA A
C330 0.022 B 1608
C349 1000p
C370 1 F 2012
C371 1 F 2012
C372 0.1 F
R357 5600
R358 33k
R362 12k
R363 33k
R364 560
C376 10 6.3V TA
C378 10 6.3V TA
R365 8200
(A-2) D304 MA111-TX
R373 0
(B-3) D303 CL-150HR-CD-T (REC/BATTERY)
CN303 13P (C-1)
1 XF_TALLY_LED
2 X_SIRCS_SIG
3 A_4.9V
4 REG GND
5 XWIND_ON
6 ZOOM_MIC_CONT
7 XMIC_MONO
8 EXT_MIC_DET
9 MIC_R
10 REG_GND
11 MIC_L
12 SHOE_MIC_L
13 AU_3.2V
TO
VC-177 BOARD(14/14)
CN107
(SEE PAGE 4-64)
IC303 RS-140-T
(A-2)
IC303
REMOTE COMMANDER RECEIVER
R370 47
C377 10 6.3V TA A
4.8
4.7
• SIGNAL PATH
AUDIO SIGNAL
REC ➡
PB
09

EZ-21 (EASY CONNECTOR) PRINTED WIRING BOARD (EASY CONNECTOR MODEL)

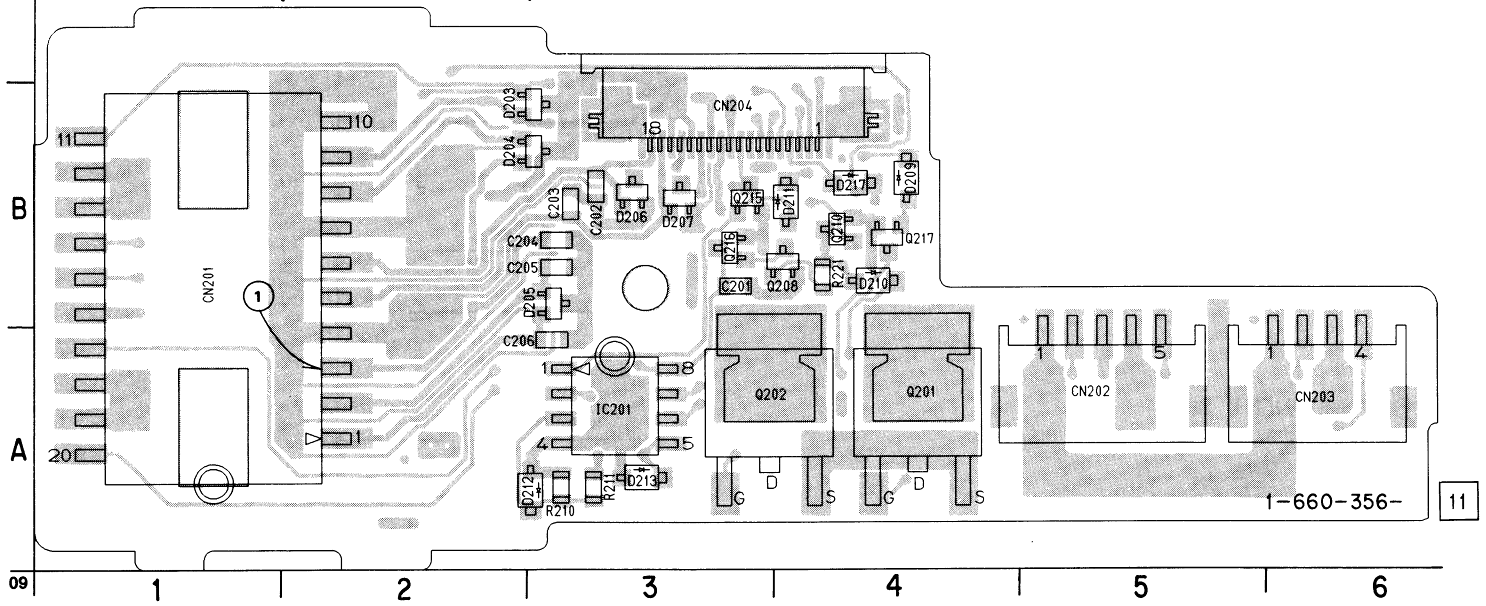
— Ref No. EZ-21 BOARD: 6,000 series —

EZ-21 BOARD (CONDUCTOR SIDE)



E
D
C
R228
R212
R217
R216
R219
R218
R215
R213
R201
D221
A
K
D208
D201
R220
R214
D218
D219
D220
Q218
R207
D217
R226
R227
Q207
R209
R222
R206
D202
R205
R204
R202
R208
Q209
Q205
D216
Q203
Q204
Q206
D214
R224
R225
R203

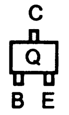
EZ-21 BOARD (COMPONENT SIDE)



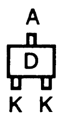
B
A
11
20
10
1
CN201
①
D203
D204
CN204
18
1
C203
C202
D206
D207
Q215
D211
D217
D209
C204
C205
Q216
Q219
D210
Q217
C201
Q208
R221
D205
C206
1
8
4
5
IC201
Q202
Q201
CN202
CN203
1
5
1
4
G
D
S
G
D
S
D212
R211
D213
R210
1-660-356-
11
09
1
2
3
4
5
6

EZ-21	BOARD
C201	B-3
CN201	B-1
CN202	A-5
CN203	A-6
CN204	B-3
D201	E-3
D202	D-2
D203	B-3
D204	B-3
D205	B-3
D206	B-3
D207	B-3
D209	B-4
D210	B-4
D211	B-4
D212	A-3
D213	A-3
D216	D-2
D217	B-4
D220	E-4
IC201	A-3
Q201	A-4
Q202	A-3
Q203	D-3
Q204	D-3
Q205	D-4
Q206	D-4
Q207	D-3
Q208	B-4
Q211	D-4
Q215	B-3
Q216	B-3
Q217	B-4
Q218	E-4
Q219	D-4
R201	E-4
R202	D-3
R203	D-3
R205	D-3
R207	D-4
R208	D-4
R209	D-4
R210	A-3
R211	A-3
R212	E-3
R213	E-4
R214	E-3
R215	E-3
R216	E-3
R217	E-3
R218	E-3
R219	E-3
R220	E-3
R221	B-4
R224	D-2
R226	D-4
R227	D-4

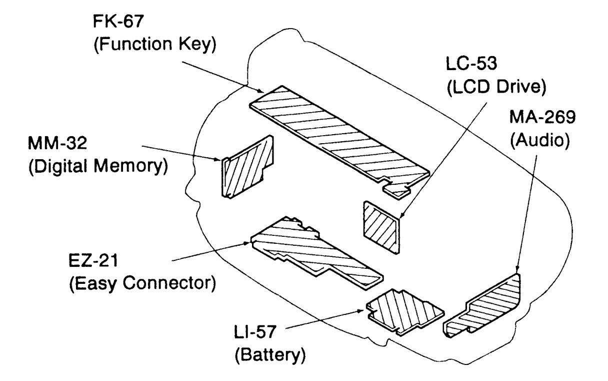
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



- Chip diode



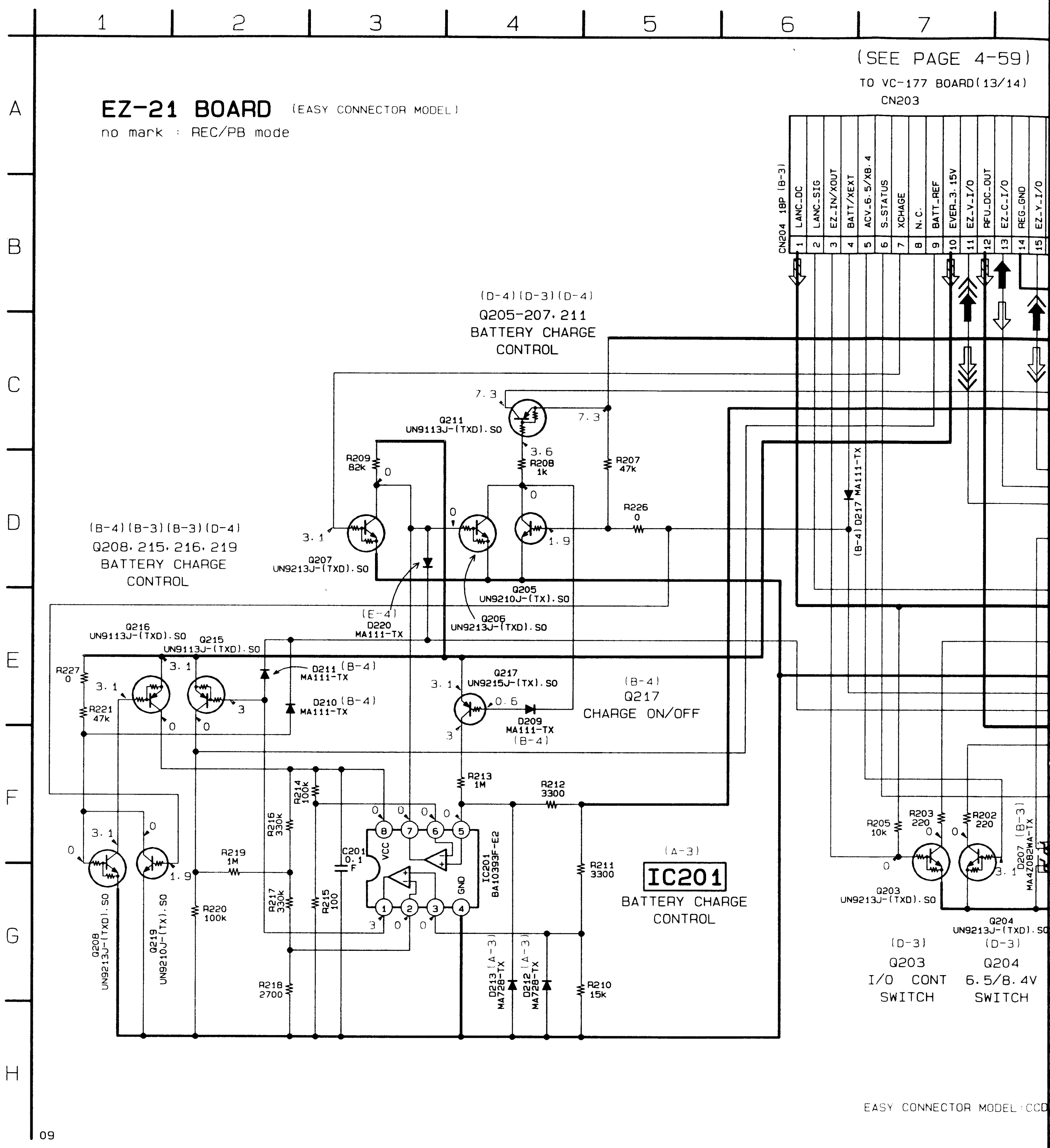
There are few cases that the part isn't mounted in this model is printed on this diagram.



FK-67
(Function Key)
LC-53
(LCD Drive)
MA-269
(Audio)
MM-32
(Digital Memory)
EZ-21
(Easy Connector)
LI-57
(Battery)

EZ-21 (EASY CONNECTOR) SCHEMATIC DIAGRAM (EASY CONNECTOR MODEL)

— Ref No. EZ-21 BOARD: 6,000 series —

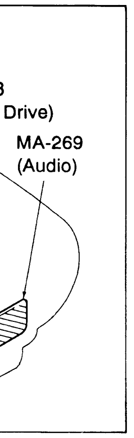


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
(SEE PAGE 4-59)
TO VC-177 BOARD(13/14)
CN203
EZ-21 BOARD (EASY CONNECTOR MODEL)
no mark : REC/PB mode
CN204 18P (B-3)
1 LANC_DC
2 LANC_SIG
3 EZ_IN/XOUT
4 BATT/XEXT
5 ACV_6.5/X8.4
6 S_STATUS
7 XCHAGE
8 N.C.
9 BATT_REF
10 EVER_3.15V
11 EZ_V_I/O
12 RFU_DC_OUT
13 EZ_C_I/O
14 REG_GND
15 EZ_Y_I/O
(D-4)(D-3)(D-4)
Q205-207, 211
BATTERY CHARGE
CONTROL
Q211
UN9113J-(TXD).SO
7.3
7.3
3.6
R208
1k
R207
47k
R209
82k
0
0
R226
0
(B-4) D217 MA111-TX
(B-4)(B-3)(B-3)(D-4)
Q208, 215, 216, 219
BATTERY CHARGE
CONTROL
3.1
Q207
UN9213J-(TXD).SO
0
1.9
Q205
UN9210J-(TX).SO
(E-4)
D220
MA111-TX
Q206
UN9213J-(TXD).SO
Q216
UN9113J-(TXD).SO
Q215
UN9113J-(TXD).SO
R227
0
3.1
3.1
R221
47k
0
0
3
D211 (B-4)
MA111-TX
D210 (B-4)
MA111-TX
Q217
UN9215J-(TX).SO
3.1
0.6
3
D209
MA111-TX
(B-4)
(B-4)
Q217
CHARGE ON/OFF
R213
1M
R212
3300
R214
100k
R216
330k
R219
1M
C201
0.1
F
VCC
GND
IC201
BA10393F-E2
8 7 6 5
1 2 3 4
0 0 0 0
3 0 0
R217
330k
R215
100
R220
100k
R218
2700
R211
3300
R210
15k
D213 (A-3)
MA728-TX
D212 (A-3)
MA728-TX
(A-3)
IC201
BATTERY CHARGE
CONTROL
3.1
0
0
1.9
Q208
UN9213J-(TXD).SO
Q219
UN9210J-(TX).SO
R205
10k
R203
220
R202
220
0
0
0
3.1
D207 (B-3)
MA4Z082WA-TX
Q203
UN9213J-(TXD).SO
Q204
UN9213J-(TXD).SO
(D-3)
Q203
I/O CONT
SWITCH
(D-3)
Q204
6.5/8.4V
SWITCH
EASY CONNECTOR MODEL:CCD
09

CN203
1
4
1-660-356-

11

6

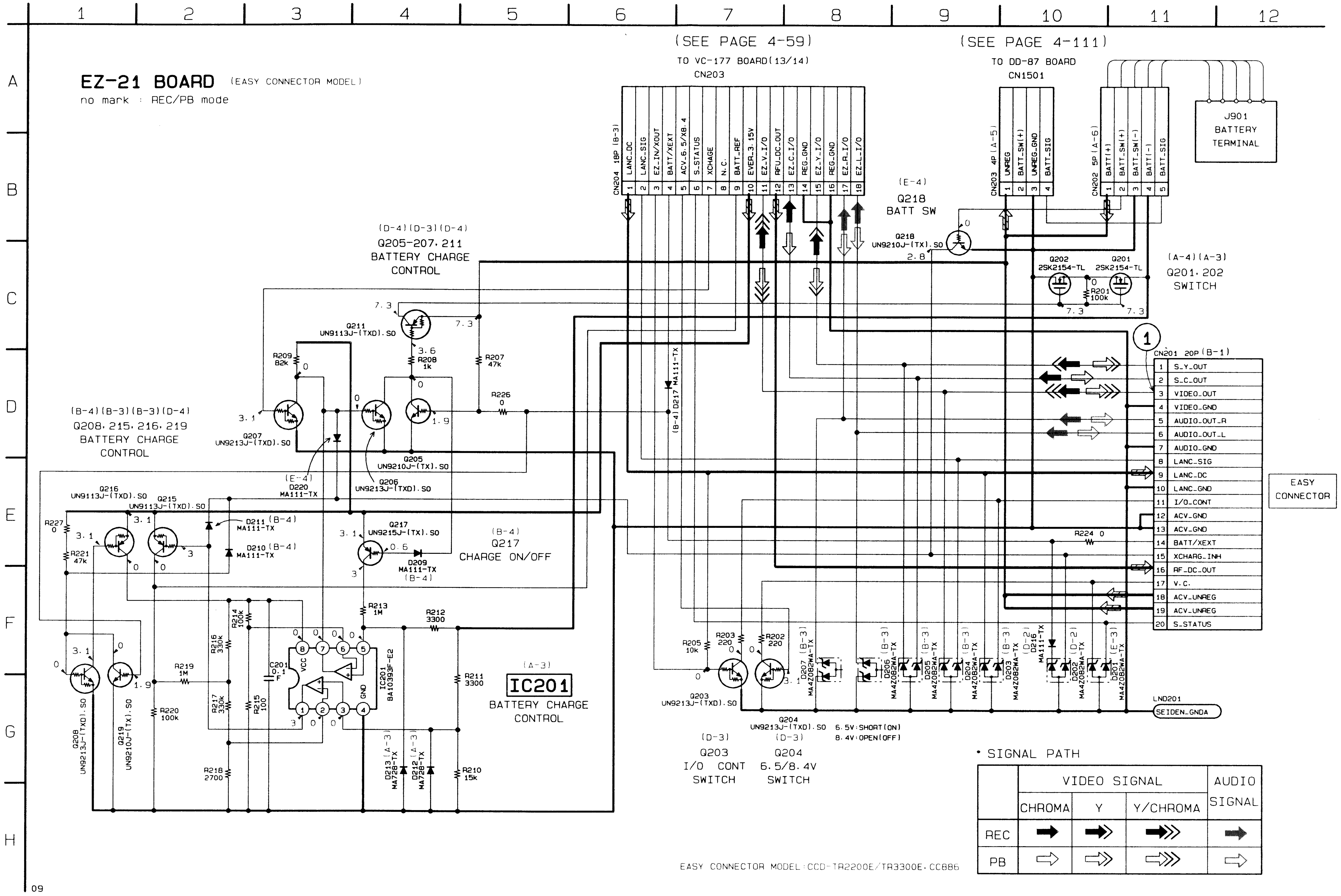

Drive)
MA-269
(Audio)

EZ-21 BOARD

C201	B-3
CN201	B-1
CN202	A-5
CN203	A-6
CN204	B-3
D201	E-3
D202	D-2
D203	B-3
D204	B-3
D205	B-3
D206	B-3
D207	B-3
D209	B-4
D210	B-4
D211	B-4
D212	A-3
D213	A-3
D216	D-2
D217	B-4
D220	E-4
IC201	A-3
Q201	A-4
Q202	A-3
Q203	D-3
Q204	D-3
Q205	D-4
Q206	D-4
Q207	D-3
Q208	B-4
Q211	D-4
Q215	B-3
Q216	B-3
Q217	B-4
Q218	E-4
Q219	D-4
R201	E-4
R202	D-3
R203	D-3
R205	D-3
R207	D-4
R208	D-4
R209	D-4
R210	A-3
R211	A-3
R212	E-3
R213	E-4
R214	E-3
R215	E-3
R216	E-3
R217	E-3
R218	E-3
R219	E-3
R220	E-3
R221	B-4
R224	D-2
R226	D-4
R227	D-4

EZ-21 (EASY CONNECTOR) SCHEMATIC DIAGRAM (EASY CONNECTOR MODEL)

— Ref No. EZ-21 BOARD: 6,000 series —

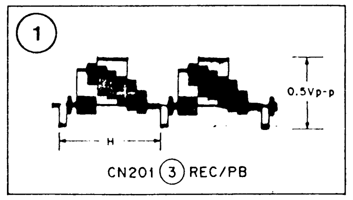

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
EZ-21 BOARD (EASY CONNECTOR MODEL)
no mark : REC/PB mode
(SEE PAGE 4-59)
TO VC-177 BOARD(13/14)
CN203
CN204 18P (B-3)
1 LANC_DC
2 LANC_SIG
3 EZ_IN/XOUT
4 BATT/XEXT
5 ACV_6.5/X8.4
6 S_STATUS
7 XCHAGE
8 N.C.
9 BATT_REF
10 EVER_3.15V
11 EZ_V_I/O
12 RFU_DC_OUT
13 EZ_C_I/O
14 REG_GND
15 EZ_Y_I/O
16 REG_GND
17 EZ_R_I/O
18 EZ_L_I/O
(SEE PAGE 4-111)
TO DD-87 BOARD
CN1501
CN203 4P (A-5)
1 UNREG
2 BATT_SW(+)
3 UNREG_GND
4 BATT_SIG
CN202 5P (A-6)
1 BATT(+)
2 BATT_SW(+)
3 BATT_SW(-)
4 BATT(-)
5 BATT_SIG
J901
BATTERY
TERMINAL
(E-4)
Q218
BATT SW
Q218
UN9210J-(TX).SO
0
2.8
Q202
2SK2154-TL
Q201
2SK2154-TL
R201
100k
7.3
(A-4)(A-3)
Q201, 202
SWITCH
(D-4)(D-3)(D-4)
Q205-207, 211
BATTERY CHARGE
CONTROL
Q211
UN9113J-(TXD).SO
R209
82k
R208
1k
3.6
R207
47k
R226
0
Q207
UN9213J-(TXD).SO
Q205
UN9210J-(TX).SO
Q206
UN9213J-(TXD).SO
(E-4)
D220
MA111-TX
1.9
3.1
(B-4)(B-3)(B-3)(D-4)
Q208, 215, 216, 219
BATTERY CHARGE
CONTROL
Q216
UN9113J-(TXD).SO
Q215
UN9113J-(TXD).SO
R227
0
R221
47k
D211 (B-4)
MA111-TX
D210 (B-4)
MA111-TX
Q217
UN9215J-(TX).SO
0.6
D209
MA111-TX
(B-4)
(B-4)
Q217
CHARGE ON/OFF
R213
1M
R212
3300
Q208
UN9213J-(TXD).SO
Q219
UN9210J-(TX).SO
R219
1M
R220
100k
R216
330k
R214
100k
R217
330k
R215
100
C201
0.1
F
VCC
GND
IC201
BA10393F-E2
R218
2700
D213 (A-3)
MA728-TX
D212 (A-3)
MA728-TX
R211
3300
R210
15k
(A-3)
IC201
BATTERY CHARGE
CONTROL
(B-4) D217 MA111-TX
1
CN201 20P (B-1)
1 S_Y_OUT
2 S_C_OUT
3 VIDEO_OUT
4 VIDEO_GND
5 AUDIO_OUT_R
6 AUDIO_OUT_L
7 AUDIO_GND
8 LANC_SIG
9 LANC_DC
10 LANC_GND
11 I/O_CONT
12 ACV_GND
13 ACV_GND
14 BATT/XEXT
15 XCHARG_INH
16 RF_DC_OUT
17 V.C.
18 ACV_UNREG
19 ACV_UNREG
20 S_STATUS
EASY
CONNECTOR
R224 0
R205
10k
R203
220
R202
220
Q203
UN9213J-(TXD).SO
Q204
UN9213J-(TXD).SO
6.5V:SHORT(ON)
8.4V:OPEN(OFF)
(D-3)
Q203
I/O CONT
SWITCH
(D-3)
Q204
6.5/8.4V
SWITCH
D207 (B-3)
MA4Z082WA-TX
D206 (B-3)
MA4Z082WA-TX
D205 (B-3)
MA4Z082WA-TX
D204 (B-3)
MA4Z082WA-TX
D203 (B-3)
MA4Z082WA-TX
(D-2)
D216
MA111-TX
D202 (D-2)
MA4Z082WA-TX
D201 (E-3)
MA4Z082WA-TX
LND201
SEIDEN_GNDA
09

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

EASY CONNECTOR MODEL: CCD-TR2200E/TR3300E, CC886

EZ-21 BOARD

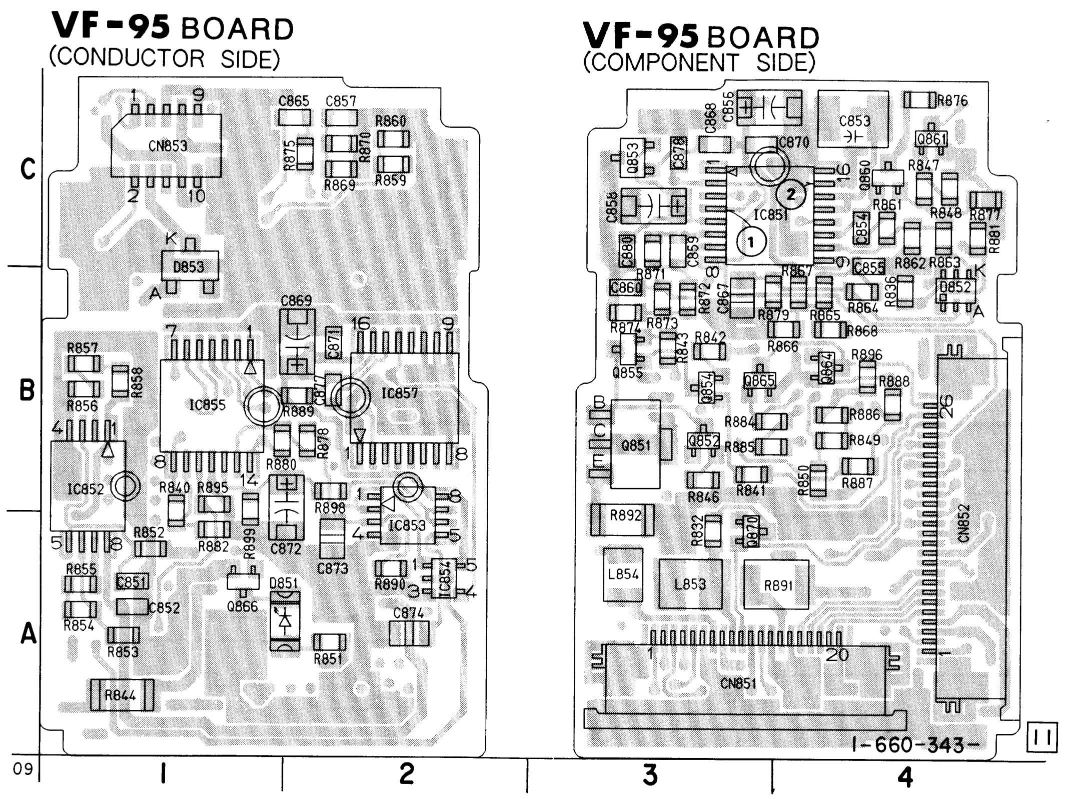


VF-95 (COLOR EVF) PRINTED WIRING BOARD (COLOR EVF Model)

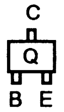
— Ref No. VF-95 BOARD: 5,000 series —

VF-95 BOARD

C851	A-1
C852	A-1
C853	C-4
C854	C-4
C855	C-4
C856	C-3
C857	C-2
C858	C-3
C859	C-3
C860	B-3
C865	C-2
C867	B-3
C868	C-3
C869	B-2
C870	C-3
C871	B-2
C872	B-2
C873	A-2
C874	A-2
C877	B-2
C878	C-3
C880	C-3
CN851	A-3
CN852	A-4
CN853	C-1
D851	A-2
D852	B-4
D853	C-1
IC851	C-3
IC852	B-1
IC853	B-2
IC854	A-2
IC855	B-1
IC857	B-2
L853	A-3
L854	A-3
Q851	B-3
Q852	B-3
Q853	C-3
Q854	B-3
Q855	B-3
Q860	C-4
Q861	C-4
Q864	B-4
Q865	B-3
Q866	A-1
Q870	A-3
R832	A-3
R836	B-4
R840	B-1
R841	B-3
R842	B-3
R843	B-3
R844	A-1
R846	B-3
R847	C-4
R849	B-4
R850	B-4
R851	A-2
R852	A-1
R853	A-1
R854	A-1
R855	A-1
R856	B-1
R857	B-1
R858	B-1
R859	C-2
R860	C-2
R861	C-4
R862	C-4
R863	C-4
R864	B-4
R865	B-4
R867	B-4
R868	B-4
R869	C-2
R870	C-2
R871	C-3
R872	B-3
R873	B-3
R874	B-3
R875	C-2
R876	C-4
R877	C-4
R878	B-2
R879	B-4
R880	B-2
R881	C-4
R882	A-1
R884	B-3
R885	B-3
R886	B-4
R887	B-4
R888	B-4
R889	B-2
R890	A-2
R891	A-4
R892	B-3
R895	B-1
R896	B-4
R898	B-2
R899	B-1

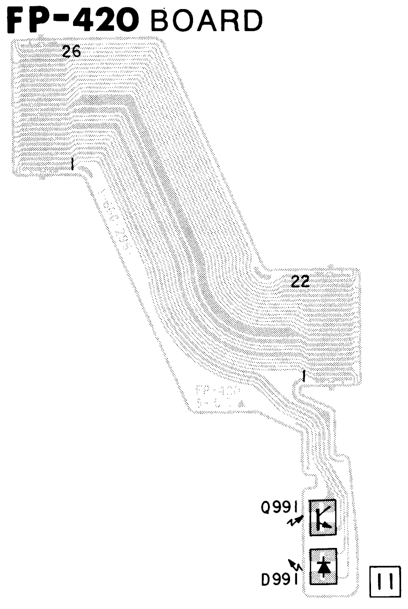

VF-95 BOARD (CONDUCTOR SIDE)
VF-95 BOARD (COMPONENT SIDE)
CN853
IC855
IC857
IC852
IC853
IC851
Q851
CN852
CN851
L853
L854
R891
1-660-343-
11
C
B
A
09
1
2
3
4

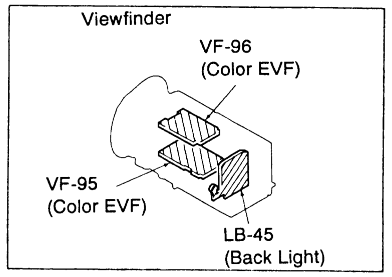
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

FP-420 (SENSOR) FLEXIBLE BOARD


FP-420 BOARD
26
1
22
1
Q991
D991
11

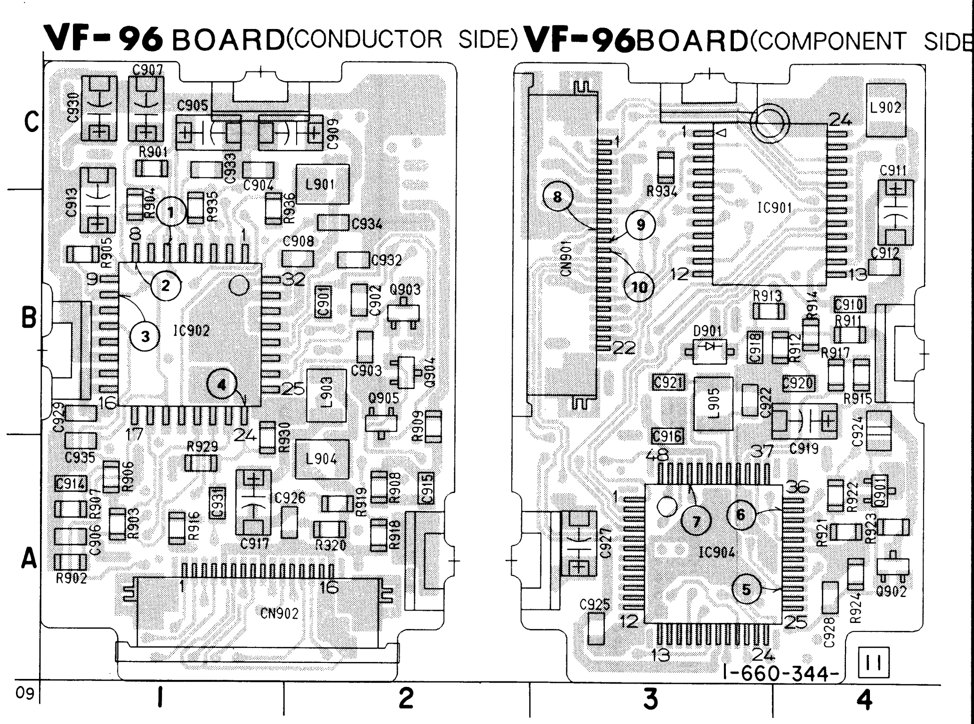

Viewfinder
VF-96
(Color EVF)
VF-95
(Color EVF)
LB-45
(Back Light)

VF-96 (COLOR EVF) PRINTED WIRING BOARD (COLOR EVF Model)

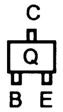
— Ref No. VF-96 BOARD: 5,000 series —

VF-96 BOARD

C901	B-2
C902	B-2
C903	B-2
C904	C-1
C905	C-1
C906	A-1
C907	C-1
C908	B-2
C909	C-2
C910	B-4
C911	B-4
C912	B-4
C913	B-1
C914	A-1
C916	B-3
C917	A-1
C918	B-3
C919	B-4
C920	B-4
C921	B-3
C922	B-3
C924	B-4
C925	A-3
C927	A-3
C929	B-1
C930	C-1
C931	A-1
C932	B-2
C933	C-1
C934	B-2
C935	A-1
CN901	B-3
CN902	A-1
D901	B-3
IC901	B-3
IC902	B-1
IC904	A-3
L901	C-2
L902	C-4
L903	B-2
L904	A-2
L905	B-3
Q901	A-4
Q902	A-4
R901	C-1
R902	A-1
R903	A-1
R904	B-1
R905	B-1
R906	A-1
R907	A-1
R908	A-2
R909	B-2
R911	B-4
R912	B-4
R913	B-3
R914	B-4
R915	B-4
R917	B-4
R921	A-4
R922	A-4
R923	A-4
R924	A-4
R929	A-1
R930	A-1
R934	C-3
R935	B-1
R936	B-1


VF-96 BOARD(CONDUCTOR SIDE)
VF-96BOARD(COMPONENT SIDE
IC902
IC901
IC904
CN902
CN901
L901
L902
L903
L904
L905
1-660-344-
11
C
B
A
09
1
2
3
4

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



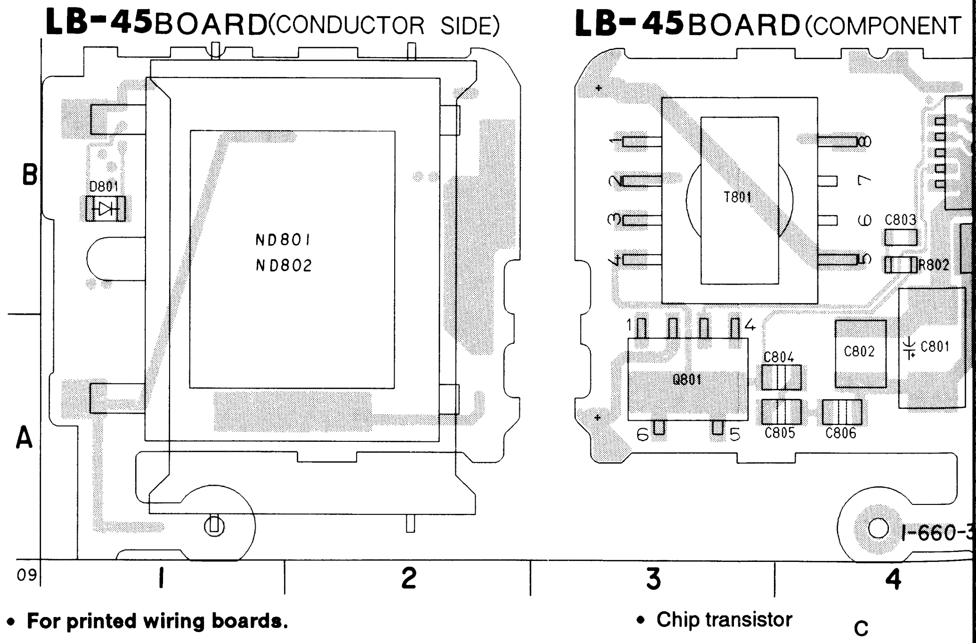
There are few cases that the part isn't mounted in this model is printed on this diagram.

LB-45 (BACK LIGHT) PRINTED WIRING BOARD (COLOR EVF Model)

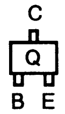
— Ref No. LB-45 BOARD: 5,000 series —

LB-45 BOARD

C801	A-4
C802	A-4
C803	B-4
C804	A-3
C805	A-3
C806	A-4
CN801	B-4
D801	B-1
L801	B-4
L802	A-4
ND801	B-1
Q801	A-3
R802	B-4
T801	B-3

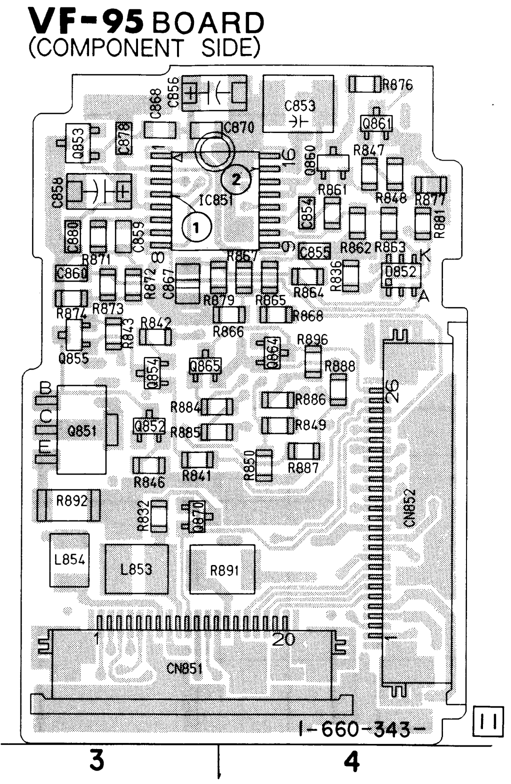

LB-45BOARD(CONDUCTOR SIDE)
LB-45BOARD(COMPONENT
ND801
ND802
D801
T801
Q801
C801
C802
C803
C804
C805
C806
R802
B
A
09
1
2
3
4

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

(COLOR EVF Model)


VF-95 BOARD
(COMPONENT SIDE)
IC851
CN851
CN852
Q851
L853
L854
R891
R892
1-660-343-
I I
3
4

tterns

m.

s model is

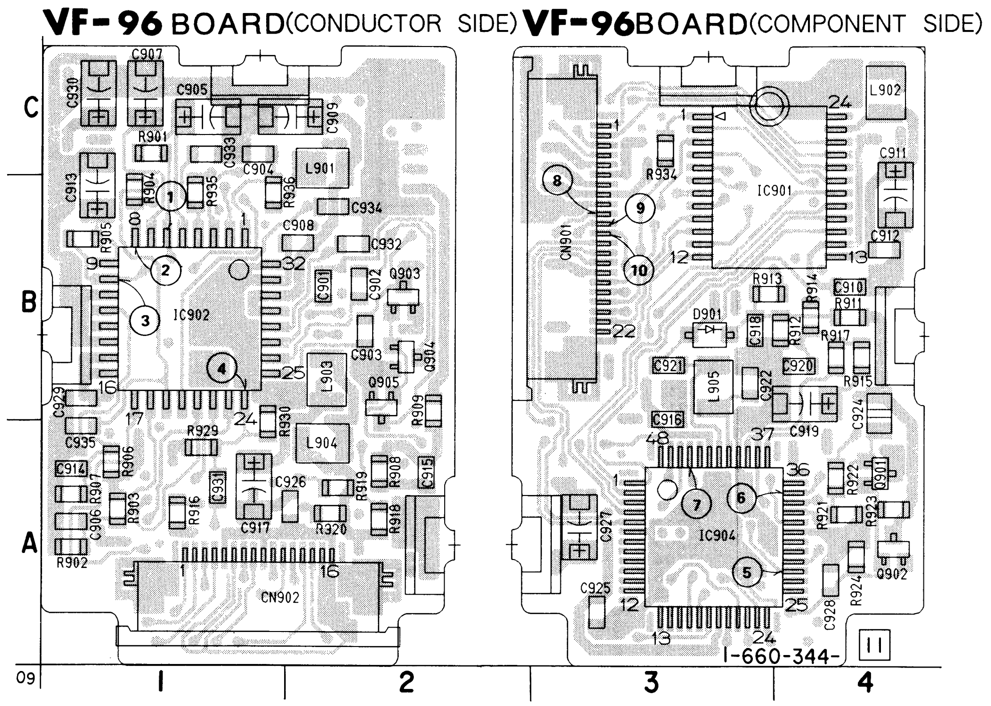
I I

VF-96 (COLOR EVF) PRINTED WIRING BOARD (COLOR EVF Model)

— Ref No. VF-96 BOARD: 5,000 series —

VF-96 BOARD

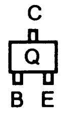
C901	B-2
C902	B-2
C903	B-2
C904	C-1
C905	C-1
C906	A-1
C907	C-1
C908	B-2
C909	C-2
C910	B-4
C911	B-4
C912	B-4
C913	B-1
C914	A-1
C916	B-3
C917	A-1
C918	B-3
C919	B-4
C920	B-4
C921	B-3
C922	B-3
C924	B-4
C925	A-3
C927	A-3
C929	B-1
C930	C-1
C931	A-1
C932	B-2
C933	C-1
C934	B-2
C935	A-1
CN901	B-3
CN902	A-1
D901	B-3
IC901	B-3
IC902	B-1
IC904	A-3
L901	C-2
L902	C-4
L903	B-2
L904	A-2
L905	B-3
Q901	A-4
Q902	A-4
R901	C-1
R902	A-1
R903	A-1
R904	B-1
R905	B-1
R906	A-1
R907	A-1
R908	A-2
R909	B-2
R911	B-4
R912	B-4
R913	B-3
R914	B-4
R915	B-4
R917	B-4
R921	A-4
R922	A-4
R923	A-4
R924	A-4
R929	A-1
R930	A-1
R934	C-3
R935	B-1
R936	B-1


VF-96 BOARD(CONDUCTOR SIDE)
VF-96BOARD(COMPONENT SIDE)
C
B
A
IC902
IC901
IC904
CN901
CN902
L901
L902
L903
L904
L905
D901
Q903
Q905
Q902
1-660-344-
I I
09
1
2
3
4

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

There are few cases that the part isn't mounted in this model is printed on this diagram.

- Chip transistor

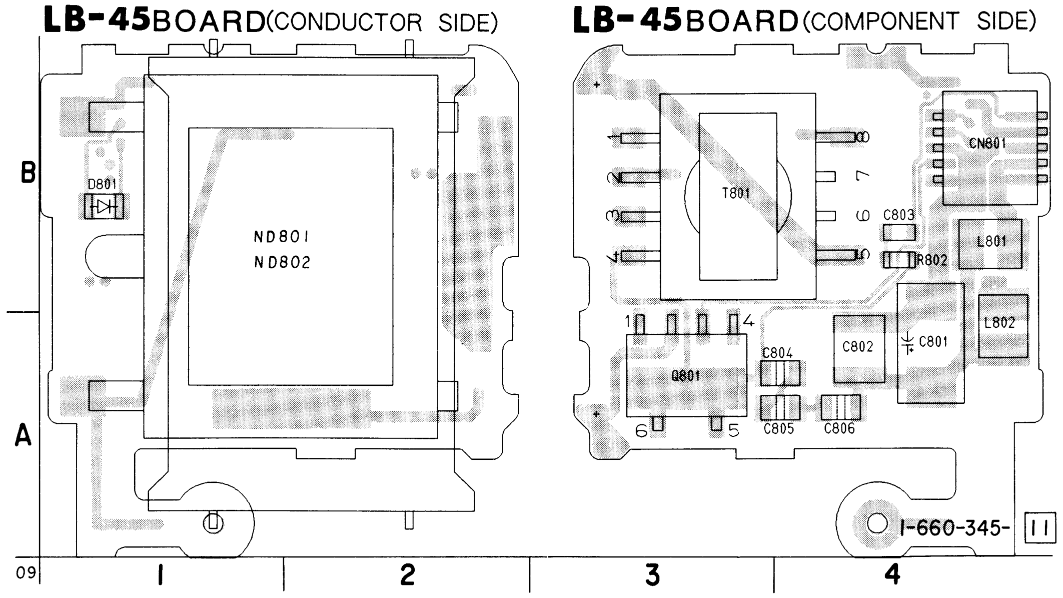


LB-45 (BACK LIGHT) PRINTED WIRING BOARD (COLOR EVF Model)

— Ref No. LB-45 BOARD: 5,000 series —

LB-45 BOARD

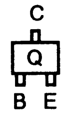
C801	A-4
C802	A-4
C803	B-4
C804	A-3
C805	A-3
C806	A-4
CN801	B-4
D801	B-1
L801	B-4
L802	A-4
ND801	B-1
Q801	A-3
R802	B-4
T801	B-3

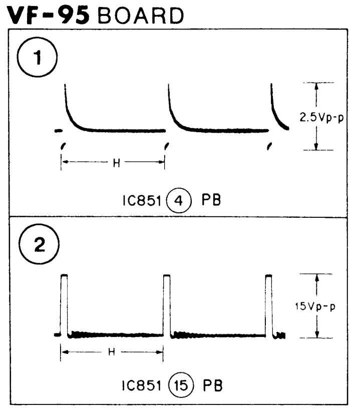

LB-45BOARD(CONDUCTOR SIDE)
LB-45BOARD(COMPONENT SIDE)
B
A
D801
ND801
ND802
T801
CN801
C803
R802
L801
L802
C801
C802
C804
C805
C806
Q801
1-660-345-
I I
09
1
2
3
4

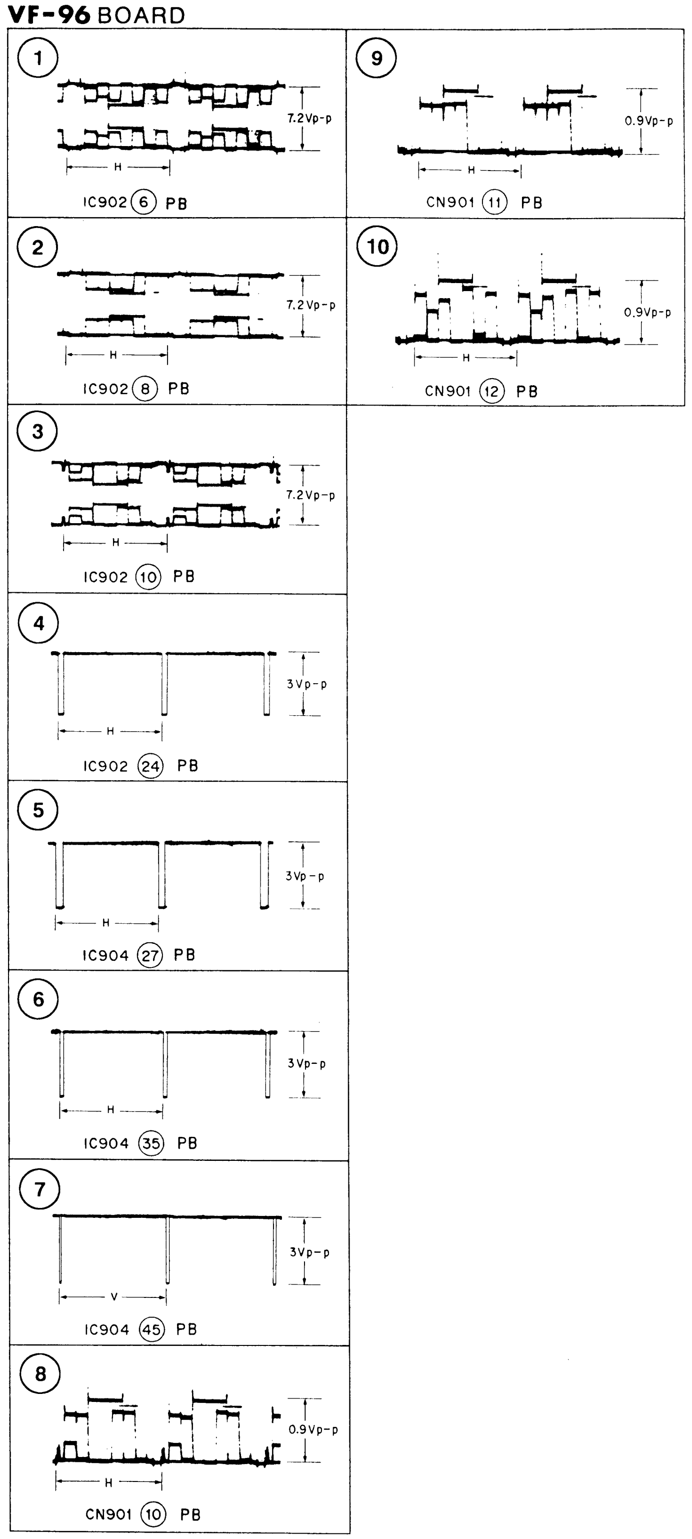
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

There are few cases that the part isn't mounted in this model is printed on this diagram.

- Chip transistor

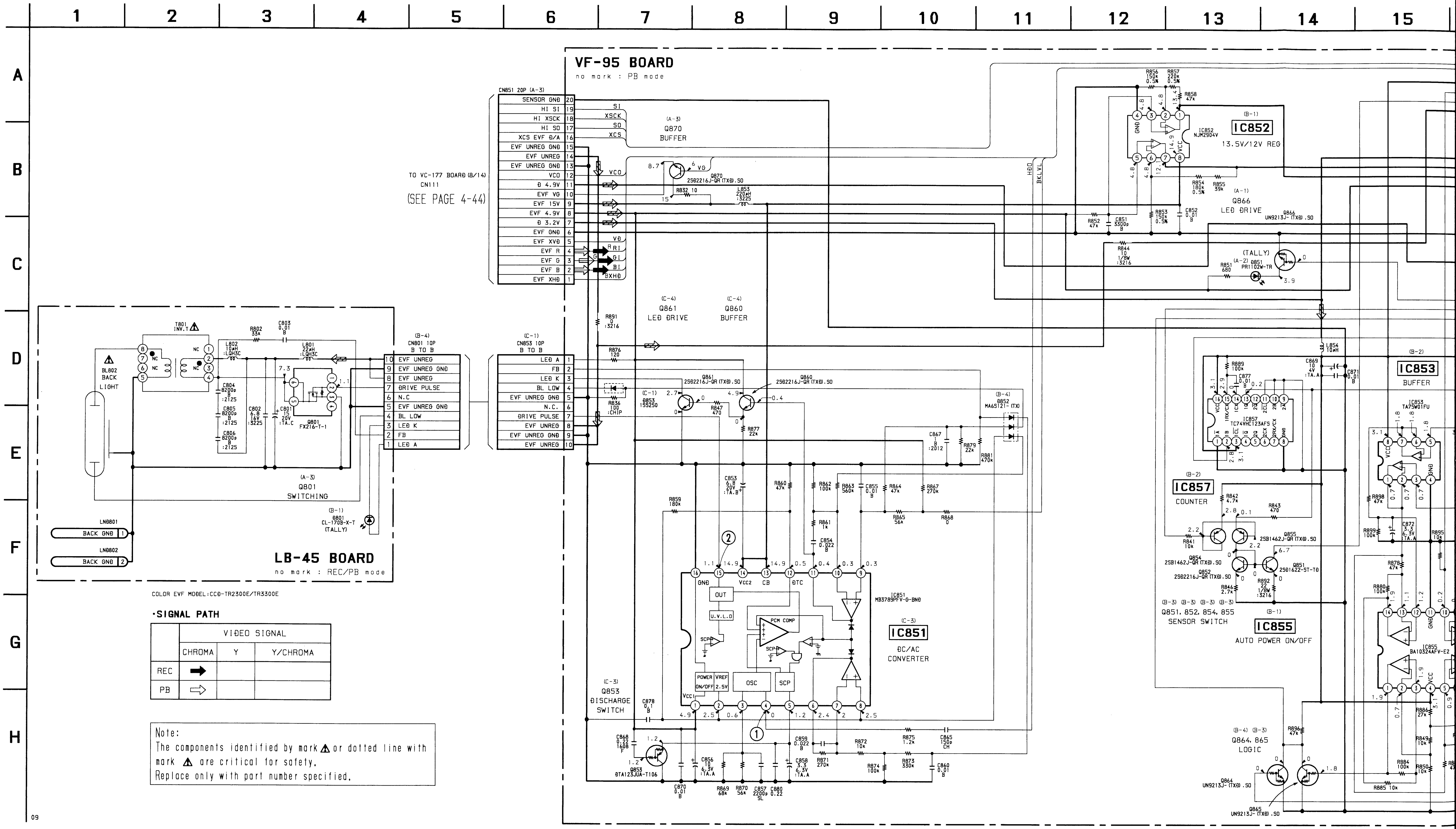






VF-95, VF-96 (COLOR EVF), LB-45 (BACK LIGHT), FP-420 (SENSOR) SCHEMATIC DIAGRAMS (COLOR EVF MODEL)

— Ref No. VF-95, VF-96 and LB-45 BOARDS and FP-420 FLEXIBLE BOARD: 5,000 series —

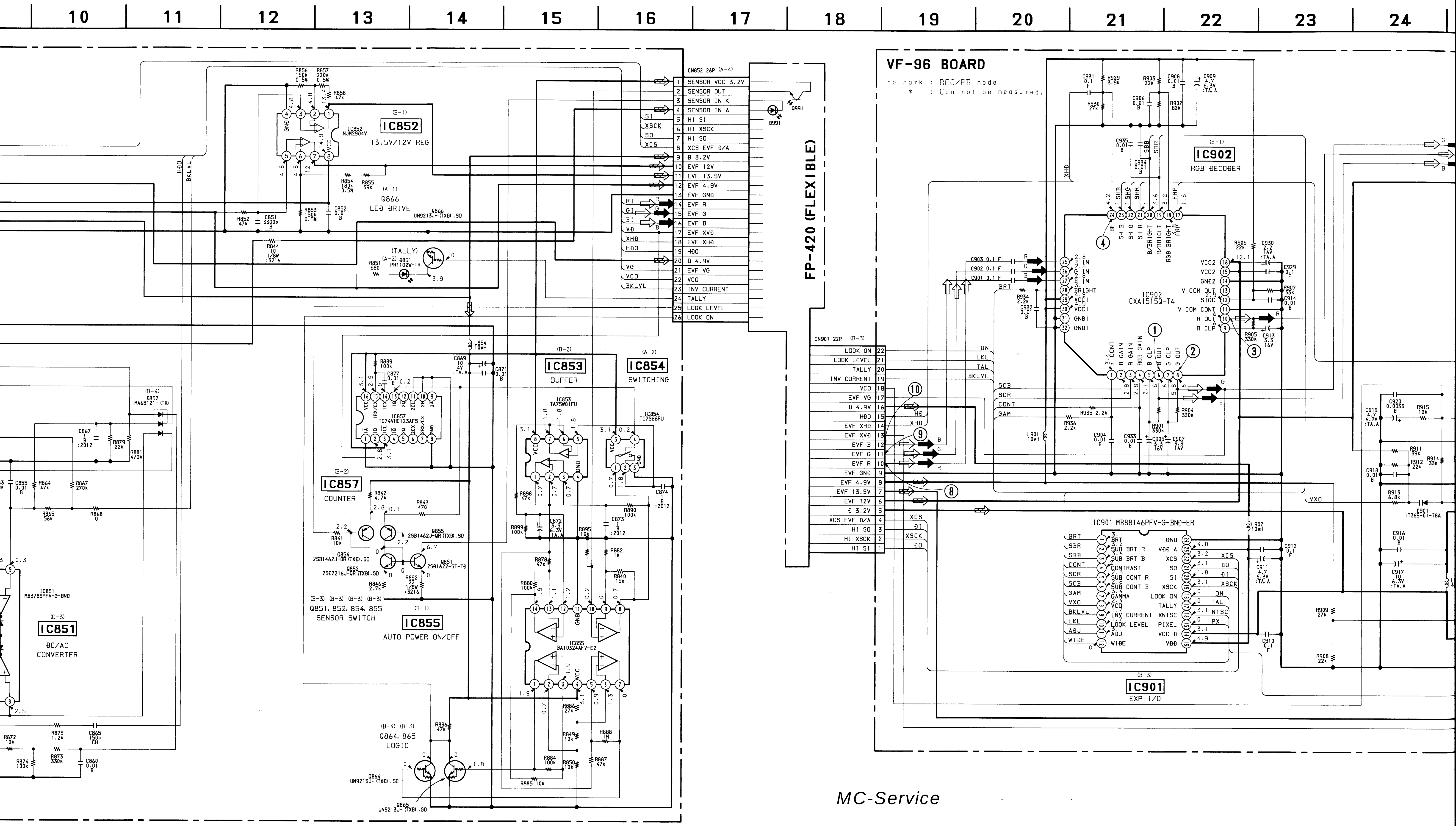


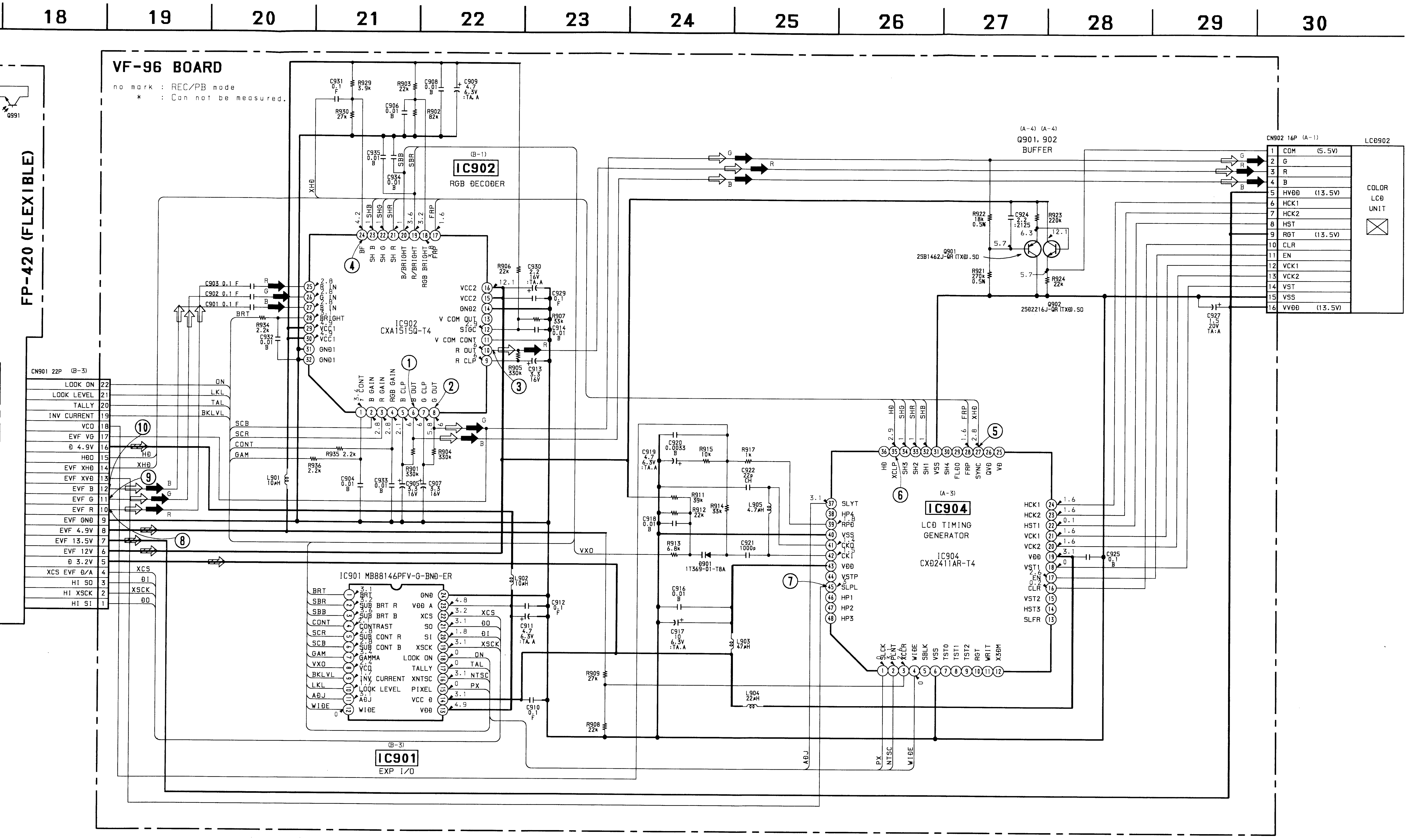
VF-95 BOARD
no mark : PB mode
LB-45 BOARD
no mark : REC/PB mode
CN851 20P (A-3)
SENSOR GND
HI SI
HI XSCK
HI SO
XCS EVF D/A
EVF UNREG GND
EVF UNREG
VCO
D 4.9V
EVF VG
EVF 15V
EVF 4.9V
D 3.2V
EVF GND
EVF XVD
EVF R
EVF G
EVF B
EVF XHD
TO VC-177 BOARD (8/14)
CN111
(SEE PAGE 4-44)
(A-3) Q870 BUFFER
(C-4) Q861 LED DRIVE
(C-4) Q860 BUFFER
(B-4) CN801 10P B TO B
(C-1) CN853 10P B TO B
LED A
FB
LED K
BL LOW
EVF UNREG GND
N.C.
DRIVE PULSE
EVF UNREG
T801 INV.T
BL802 BACK LIGHT
(A-3) Q801 SWITCHING
Q801 FX216-T-1
(B-1) D801 CL-170B-X-T (TALLY)
LND801 BACK GND
LND802 BACK GND
(C-3) Q853 DISCHARGE SWITCH
Q853 DTA123JUA-T106
IC851 MB3789PFV-G-BND
(C-3) IC851 DC/AC CONVERTER
GND
VCC2
CB
DTC
OUT
U.V.L.O
PCM COMP
POWER ON/OFF
VREF 2.5V
OSC
SCP
VCC1
(B-1) IC852 NJM2904V
IC852 13.5V/12V REG
(A-1) Q866 LED DRIVE
Q866 UN9213J-(TX0).SO
(TALLY) (A-2) D851 PR1102W-TR
(B-4) D852 MA6S121-(TX)
(B-2) IC857 COUNTER
IC857 TC74VHC123AFS
(B-2) IC853 BUFFER
IC853 TA75W01FU
(B-3) (B-3) (B-3) (B-3) Q851, 852, 854, 855 SENSOR SWITCH
(B-1) IC855 AUTO POWER ON/OFF
IC855 BA10324AFV-E2
(B-4) (B-3) Q864, 865 LOGIC
Q864 UN9213J-(TX0).SO
Q865 UN9213J-(TX0).SO
HBD
BKLVL
COLOR EVF MODEL:CCD-TR2300E/TR3300E

·SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

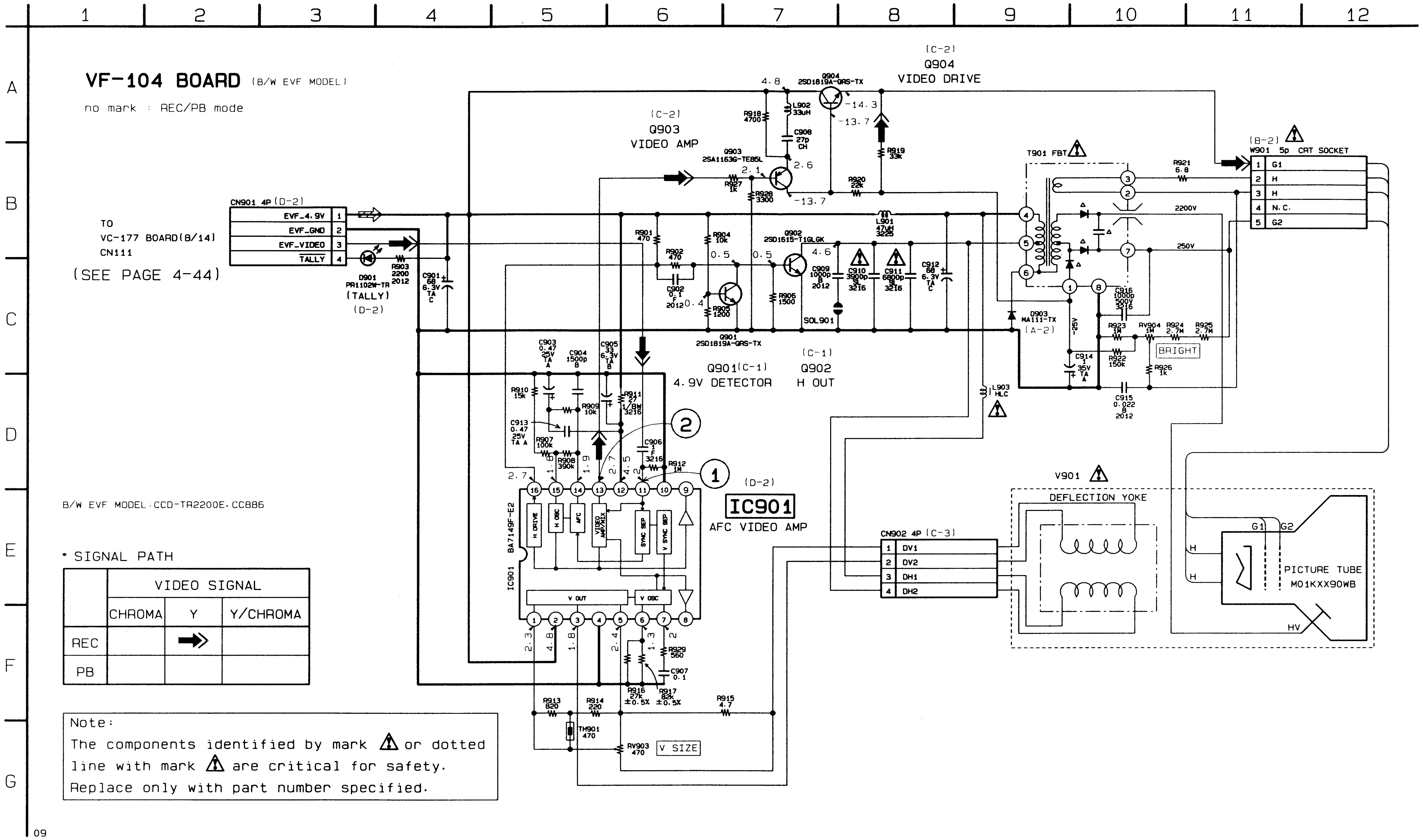
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.


10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
VF-96 BOARD
no mark : REC/PB mode
* : Can not be measured.
CN852 26P (A-4)
1 SENSOR VCC 3.2V
2 SENSOR OUT
3 SENSOR IN K
4 SENSOR IN A
5 HI SI
6 HI XSCK
7 HI SO
8 XCS EVF D/A
9 D 3.2V
10 EVF 12V
11 EVF 13.5V
12 EVF 4.9V
13 EVF GND
14 EVF R
15 EVF G
16 EVF B
17 EVF XVD
18 EVF XHD
19 HDD
20 D 4.9V
21 EVF VG
22 VCO
23 INV CURRENT
24 TALLY
25 LOOK LEVEL
26 LOOK ON
FP-420 (FLEXIBLE)
Q991
D991
CN901 22P (B-3)
LOOK ON 22
LOOK LEVEL 21
TALLY 20
INV CURRENT 19
VCO 18
EVF VG 17
D 4.9V 16
HDD 15
EVF XHD 14
EVF XVD 13
EVF B 12
EVF G 11
EVF R 10
EVF GND 9
EVF 4.9V 8
EVF 13.5V 7
EVF 12V 6
D 3.2V 5
XCS EVF D/A 4
HI SO 3
HI XSCK 2
HI SI 1
IC852 NJM2904V
IC852
13.5V/12V REG
Q866
LED DRIVE
Q866 UN9213J-(TX).SO
(TALLY)
D851 PR1102W-TR
IC857 TC74VHC123AFS
IC857
COUNTER
IC853 TA75W01FU
IC853
BUFFER
IC854 TC7S66FU
IC854
SWITCHING
Q855 2SB1462J-QR(TX).SO
Q854 2SB1462J-QR(TX).SO
Q852 2SD2216J-QR(TX).SO
Q851 2SD1622-ST-TD
Q851, 852, 854, 855
SENSOR SWITCH
IC855 BA10324AFV-E2
IC855
AUTO POWER ON/OFF
Q864, 865
LOGIC
Q864 UN9213J-(TX).SO
Q865 UN9213J-(TX).SO
D852 MA6S121-(TX)
IC851 MB3789PFV-G-BND
IC851
DC/AC
CONVERTER
HDD
BKLVL
IC902
RGB DECODER
IC902 CXA1515Q-T4
IC901 MB88146PFV-G-BND-ER
IC901
EXP I/O
L901 10μH
L902 10μH
D901 1T369-01-T8A
VXO
①
②
③
④
⑧
⑨
⑩


18
19
20
21
22
23
24
25
26
27
28
29
30
VF-96 BOARD
no mark : REC/PB mode
* : Can not be measured.
FP-420 (FLEXIBLE)
Q991
CN901 22P (B-3)
LOOK ON 22
LOOK LEVEL 21
TALLY 20
INV CURRENT 19
VCO 18
EVF VG 17
Ð 4.9V 16
HÐ 15
EVF XHÐ 14
EVF XVÐ 13
EVF B 12
EVF G 11
EVF R 10
EVF GNÐ 9
EVF 4.9V 8
EVF 13.5V 7
EVF 12V 6
Ð 3.2V 5
XCS EVF Ð/A 4
HI SO 3
HI XSCK 2
HI SI 1
IC902
RGB DECODER
IC902
CXA1515Q-T4
IC901
EXP I/O
IC901 MB88146PFV-G-BND-ER
IC904
LCD TIMING
GENERATOR
IC904
CXD2411AR-T4
Q901, 902
BUFFER
Q901
2SB1462J-QR(TXØ).SO
Q902
2SD2216J-QR(TXØ).SO
D901
1T369-01-T8A
CN902 16P (A-1)
1 COM (5.5V)
2 G
3 R
4 B
5 HVDD (13.5V)
6 HCK1
7 HCK2
8 HST
9 RGT (13.5V)
10 CLR
11 EN
12 VCK1
13 VCK2
14 VST
15 VSS
16 VVDD (13.5V)
LCD902
COLOR
LCD
UNIT
VXO
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩

VF-104 (B/W EVF) SCHEMATIC DIAGRAM (B/W EVF MODEL)

— Ref No. VF-104 BOARD: 7,000 series —


1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G
VF-104 BOARD (B/W EVF MODEL)
no mark : REC/PB mode
TO VC-177 BOARD(8/14) CN111
(SEE PAGE 4-44)
CN901 4P (D-2)
EVF_4.9V
EVF_GND
EVF_VIDEO
TALLY
D901 PR1102W-TR (TALLY) (D-2)
R903 2200 2012
C901 68 6.3V TA C
(C-2) Q903 VIDEO AMP
Q903 2SA1163G-TE85L
(C-2) Q904 VIDEO DRIVE
Q904 2SD1819A-QRS-TX
L902 33uH
C908 27p CH
R918 4700
R919 33k
R920 22k
R927 1k
R928 3300
4.8
-14.3
-13.7
2.1
2.6
-13.7
R901 470
R902 470
R904 10k
C902 0.1 F 2012
R905 1200
Q902 2SD1615-T1GLGK
Q901 2SD1819A-QRS-TX
R906 1500
L901 47uH 3225
C909 1000p B 2012
C910 3900p B 3216
C911 6800p B 3216
C912 68 6.3V TA C
SOL901
0.5
0.5
0.4
4.6
Q901 (C-1) 4.9V DETECTOR
(C-1) Q902 H OUT
T901 FBT
R921 6.8
2200V
250V
C916 1000p 500V 3216
D903 MA111-TX (A-2)
-25V
C914 1 35V TA A
R923 1M
RV904 1M
R924 2.7M
R925 2.7M
R922 150k
R926 1k
BRIGHT
C915 0.022 B 2012
L903 HLC
(B-2) W901 5p CRT SOCKET
G1
H
H
N.C.
G2
V901
DEFLECTION YOKE
CN902 4P (C-3)
DV1
DV2
DH1
DH2
G1 G2
H
H
HV
PICTURE TUBE M01KXX90WB
C903 0.47 25V TA A
C904 1500p B
C905 33 6.3V TA B
R910 15k
R909 10k
R911 27 1/8W 3216
C913 0.47 25V TA A
R907 100k
R908 390k
C906 1 F 3216
R912 1M
IC901 BA7149F-E2
H DRIVE
H OSC
AFC
VIDEO AMP/MIX
SYNC SEP
V SYNC SEP
V OUT
V OSC
(D-2) IC901 AFC VIDEO AMP
2.7
2.3
4.8
1.8
2.4
1.3
2
R929 560
C907 0.1
R913 820
R914 220
TH901 470
R916 27k ±0.5%
R917 82k ±0.5%
R915 4.7
RV903 470
V SIZE
B/W EVF MODEL:CCD-TR2200E, CC886
09

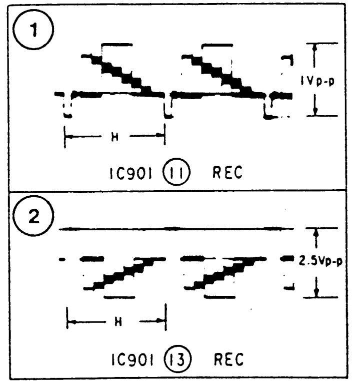
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB			

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MC-Service

VF-104 BOARD

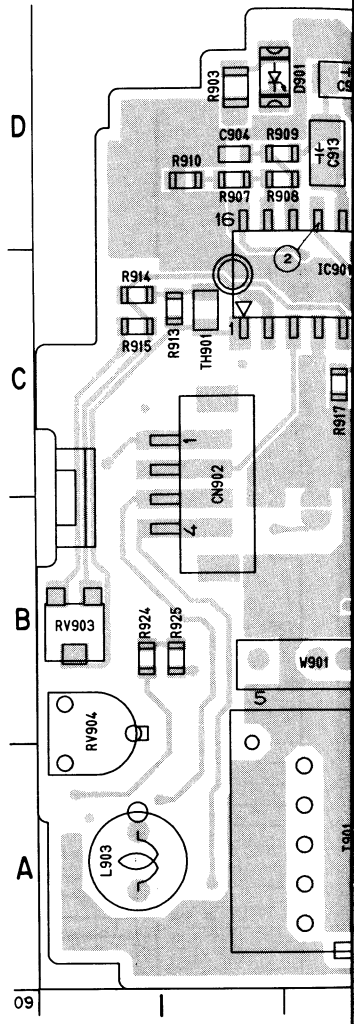


VF-104 (B/W EVF) PRINTED WIRING BOARD (B

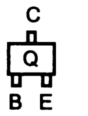
— Ref No. VF-104 BOARD: 7,000 series —

VF-104 BOARD	
C901	D-3
C902	C-4
C903	D-2
C904	D-1
C905	D-3
C906	D-2
C907	C-2
C908	C-3
C909	B-4
C910	B-4
C911	B-4
C912	A-3
C913	D-2
C914	A-3
C915	A-4
C916	B-4
CN901	D-4
CN902	C-1
D901	D-1
D903	A-4
IC901	C-2
L901	C-3
L902	C-3
L903	A-1
Q901	C-4
Q902	C-4
Q903	C-3
Q904	B-3
R901	C-3
R902	C-4
R903	D-1
R904	C-3
R905	C-4
R906	C-4
R907	D-1
R908	D-2
R909	D-2
R910	D-1
R911	D-4
R912	D-2
R913	C-1
R914	C-1
R915	C-1
R916	C-2
R917	C-2
R918	C-3
R919	B-3
R920	B-3
R921	B-3
R922	B-4
R923	B-4
R924	B-1
R925	B-1
R926	A-4
R927	C-3
R928	C-3
R929	C-2
RV903	B-1
RV904	B-1
T901	A-2
TH901	C-1
W901	B-2

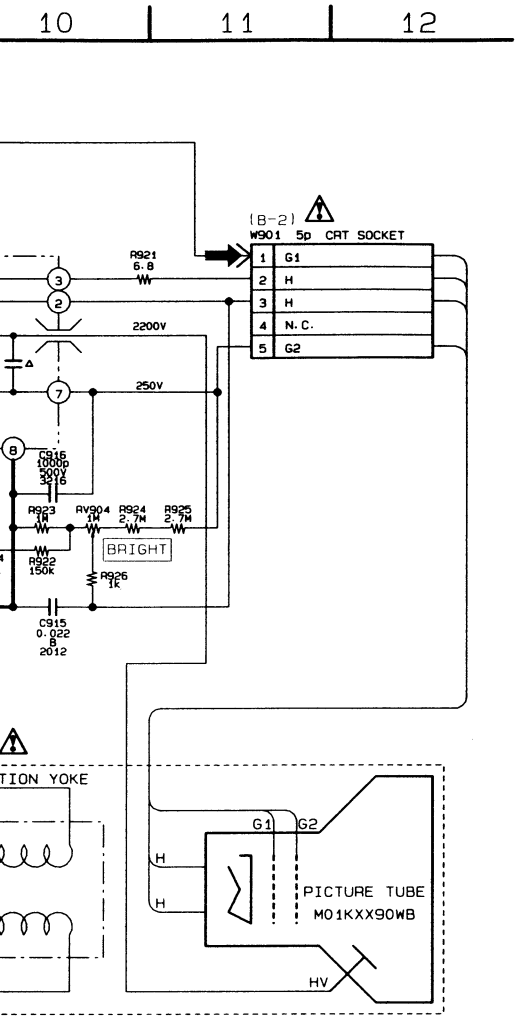
VF-104 BOARD
(COMPONENT SIDE)


D
C
B
A
R903
D901
R910
C904
R909
C913
R907
R908
R914
R915
TH901
R913
IC901
CN902
R917
RV903
R924
R925
W901
5
RV904
L903
09

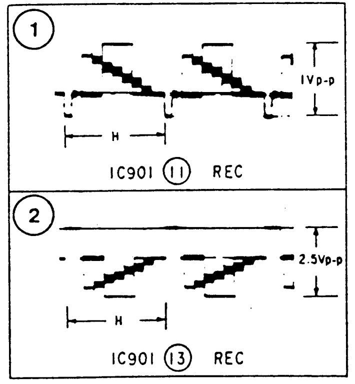
- **For printed wiring boards.**
- This board is a four-layer print boa
  of layers 2 and 3 have not been in
- Chip transistor



There are few cases that the part is
printed on this diagram.


10
11
12
(B-2)
W901 5p CRT SOCKET
1 G1
2 H
3 H
4 N.C.
5 G2
R921 6.8
2200V
250V
C916 1000p 500V 3216
R923 1M
RV904 1M
R924 2.7M
R925 2.7M
BRIGHT
R922 150k
R926 1k
C915 0.022 B 2012
TION YOKE
G1
G2
H
H
PICTURE TUBE M01KXX90WB
HV

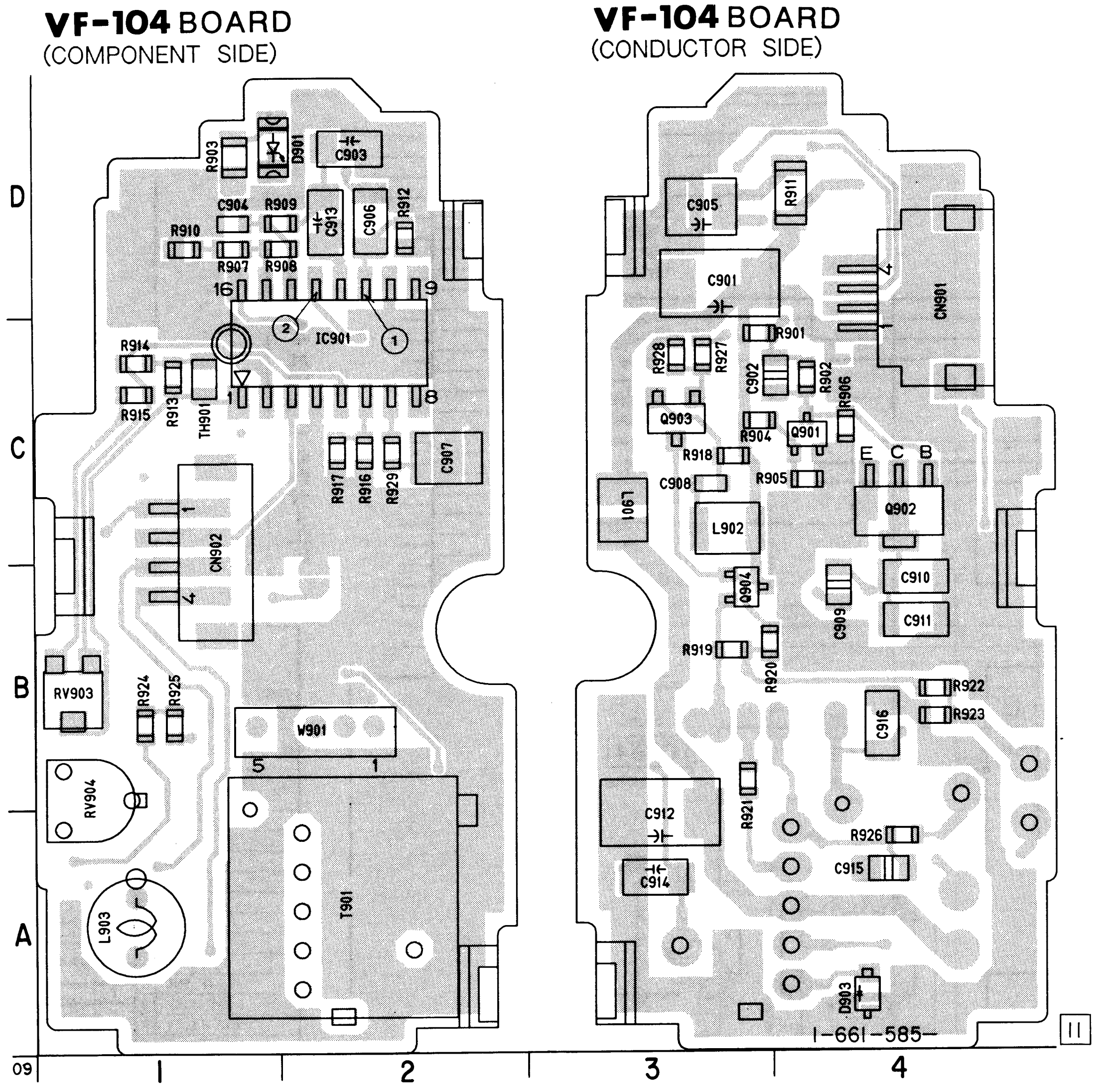
VF-104 BOARD



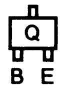
VF-104 (B/W EVF) PRINTED WIRING BOARD (B/W EVF MODEL)

— Ref No. VF-104 BOARD: 7,000 series —

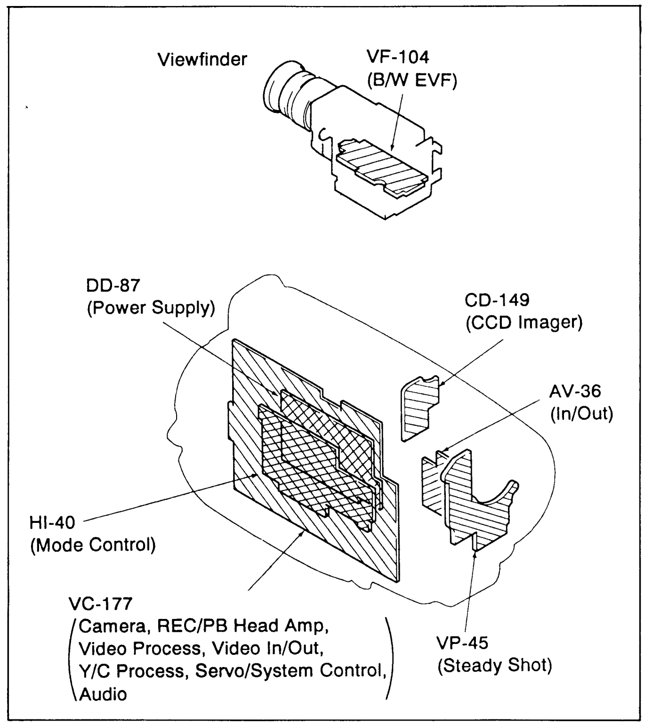
VF-104 BOARD	
C901	D-3
C902	C-4
C903	D-2
C904	D-1
C905	D-3
C906	D-2
C907	C-2
C908	C-3
C909	B-4
C910	B-4
C911	B-4
C912	A-3
C913	D-2
C914	A-3
C915	A-4
C916	B-4
CN901	D-4
CN902	C-1
D901	D-1
D903	A-4
IC901	C-2
L901	C-3
L902	C-3
L903	A-1
Q901	C-4
Q902	C-4
Q903	C-3
Q904	B-3
R901	C-3
R902	C-4
R903	D-1
R904	C-3
R905	C-4
R906	C-4
R907	D-1
R908	D-2
R909	D-2
R910	D-1
R911	D-4
R912	D-2
R913	C-1
R914	C-1
R915	C-1
R916	C-2
R917	C-2
R918	C-3
R919	B-3
R920	B-3
R921	B-3
R922	B-4
R923	B-4
R924	B-1
R925	B-1
R926	A-4
R927	C-3
R928	C-3
R929	C-2
RV903	B-1
RV904	B-1
T901	A-2
TH901	C-1
W901	B-2


VF-104 BOARD
(COMPONENT SIDE)
VF-104 BOARD
(CONDUCTOR SIDE)
D
C
B
A
09
1
2
3
4
11
1-661-585-
C901
C902
C903
C904
C905
C906
C907
C908
C909
C910
C911
C912
C913
C914
C915
C916
CN901
CN902
D901
D903
IC901
L901
L902
L903
Q901
Q902
Q903
Q904
R901
R902
R903
R904
R905
R906
R907
R908
R909
R910
R911
R912
R913
R914
R915
R916
R917
R918
R919
R920
R921
R922
R923
R924
R925
R926
R927
R928
R929
RV903
RV904
T901
TH901
W901
E C B
16
9
1
8
5
1
4
①
②

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

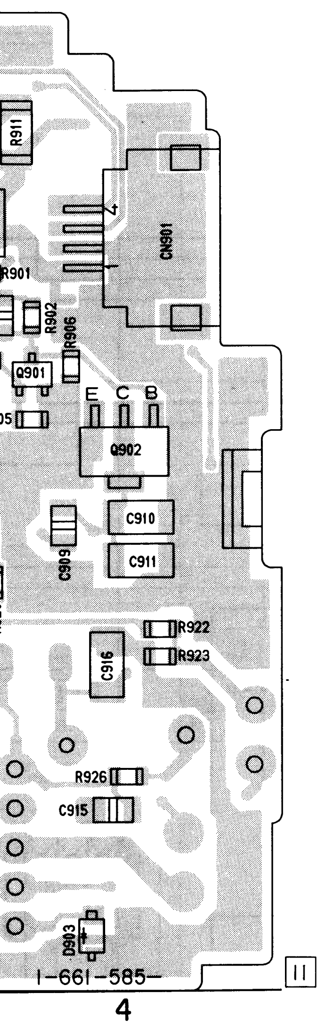


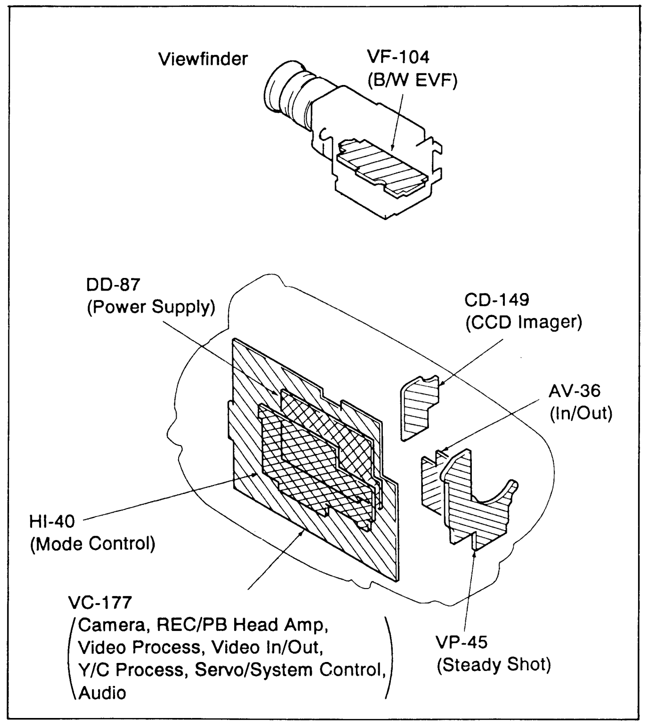
There are few cases that the part isn't mounted in this model is printed on this diagram.


Viewfinder
VF-104
(B/W EVF)
DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
VP-45
(Steady Shot)

DD-87 BOAR	
C1501	E-2
C1502	E-2
C1503	D-4
C1504	E-1
C1506	D-3
C1507	D-2
C1508	D-2
C1509	D-2
C1510	D-2
C1511	D-1
C1512	D-1
C1513	D-3
C1514	D-3
C1515	C-3
C1519	C-2
C1520	C-2
C1521	C-2
C1522	D-1
C1523	D-1
C1524	D-1
C1525	D-1
C1526	C-2
C1529	C-3
C1530	B-5
C1531	B-3
C1532	C-6
C1533	C-1
C1534	B-5
C1535	A-2
C1536	A-2
C1537	A-3
C1538	D-5
C1539	D-5
C1540	C-1
C1541	B-2
C1542	C-2
C1543	C-5
C1544	A-1
C1545	A-1
C1546	A-2
C1547	A-2
C1548	A-1
C1549	B-3
C1550	D-1
C1551	D-2
CN1501	E-4
CN1503	A-5
D1501	C-5
D1502	E-3
D1503	E-4
IC1501	D-2
L1501	D-5
L1502	D-6
L1503	D-4
L1504	B-4
L1505	C-4
L1506	B-6
L1507	B-5
L1508	A-5
L1509	A-4
L1510	A-4
L1511	C-5
L1512	C-5
L1513	A-6
L1514	A-6
L1515	A-5
L1516	A-5
PS1501	E-5
PS1502	E-5
PS1503	E-5
PS1504	E-6

ARD
IDE)


R911
CN901
R901
R902
R906
Q901
E C B
Q902
C909
C910
C911
R922
R923
C916
R926
C915
D903
1-661-585-
4


Viewfinder
VF-104
(B/W EVF)
DD-87
(Power Supply)
CD-149
(CCD Imager)
AV-36
(In/Out)
HI-40
(Mode Control)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio
VP-45
(Steady Shot)

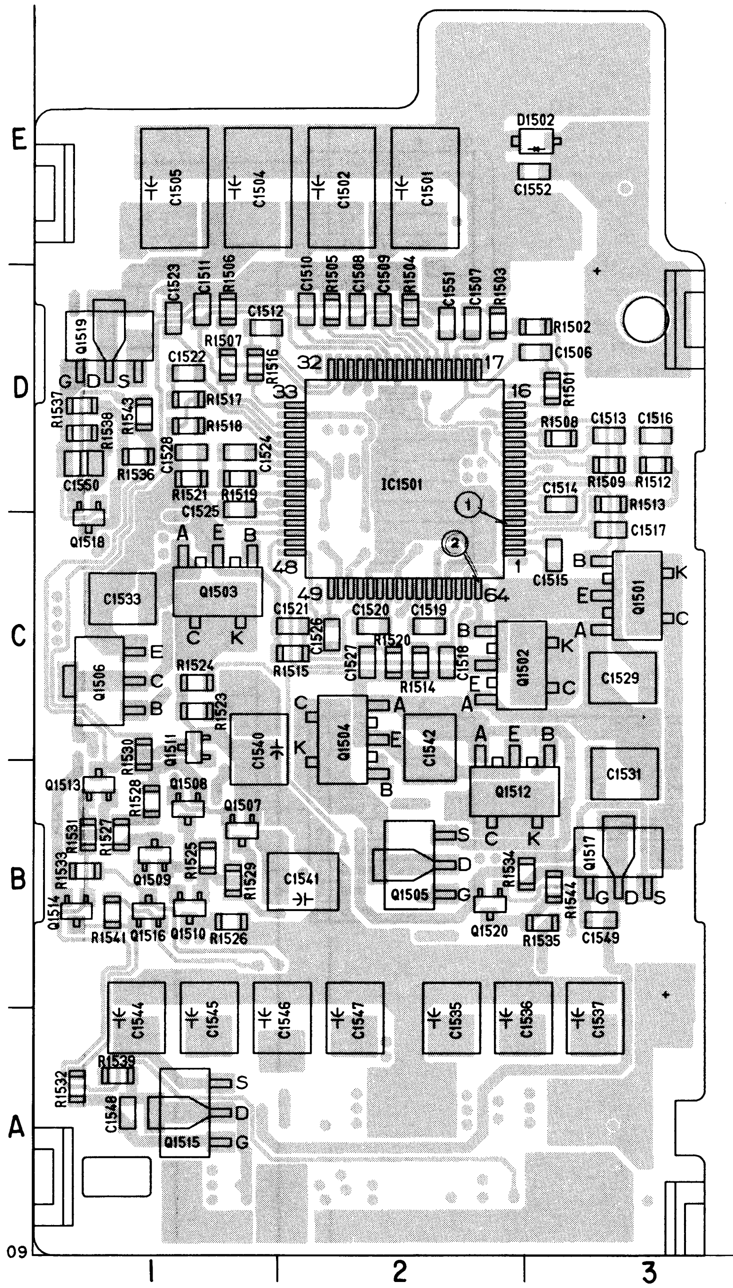
DD-87 BOARD

C1501	E-2
C1502	E-2
C1503	D-4
C1504	E-1
C1506	D-3
C1507	D-2
C1508	D-2
C1509	D-2
C1510	D-2
C1511	D-1
C1512	D-1
C1513	D-3
C1514	D-3
C1515	C-3
C1519	C-2
C1520	C-2
C1521	C-2
C1522	D-1
C1523	D-1
C1524	D-1
C1525	D-1
C1526	C-2
C1529	C-3
C1530	B-5
C1531	B-3
C1532	C-6
C1533	C-1
C1534	B-5
C1535	A-2
C1536	A-2
C1537	A-3
C1538	D-5
C1539	D-5
C1540	C-1
C1541	B-2
C1542	C-2
C1543	C-5
C1544	A-1
C1545	A-1
C1546	A-2
C1547	A-2
C1548	A-1
C1549	B-3
C1550	D-1
C1551	D-2
CN1501	E-4
CN1503	A-5
D1501	C-5
D1502	E-3
D1503	E-4
IC1501	D-2
L1501	D-5
L1502	D-6
L1503	D-4
L1504	B-4
L1505	C-4
L1506	B-6
L1507	B-5
L1508	A-5
L1509	A-4
L1510	A-4
L1511	C-5
L1512	C-5
L1513	A-6
L1514	A-6
L1515	A-5
L1516	A-5
PS1501	E-5
PS1502	E-5
PS1503	E-5
PS1504	E-6
Q1501	C-3
Q1502	C-2
Q1503	C-1
Q1504	C-2
Q1505	B-2
Q1506	C-1
Q1507	B-1
Q1508	B-1
Q1509	B-1
Q1510	B-1
Q1511	C-1
Q1512	B-2
Q1513	B-1
Q1514	B-1
Q1515	A-1
Q1516	B-1
Q1517	B-3
Q1518	C-1
Q1519	D-1
Q1520	B-2
Q1521	D-6
R1501	D-3
R1503	D-2
R1504	D-2
R1505	D-2
R1506	D-1
R1507	D-1
R1508	D-3
R1509	D-3
R1512	D-3
R1513	D-3
R1514	C-2
R1515	C-2
R1516	D-1
R1517	D-1
R1518	D-1
R1519	D-1
R1520	C-2
R1521	D-1
R1522	C-5
R1523	C-1
R1524	C-1
R1525	B-1
R1526	B-1
R1527	B-1
R1528	B-1
R1529	B-1
R1530	C-1
R1531	B-1
R1532	A-1
R1533	B-1
R1534	B-3
R1535	B-3
R1536	D-1
R1537	D-1
R1538	D-1
R1543	D-1
R1544	B-3
T1501	C-5

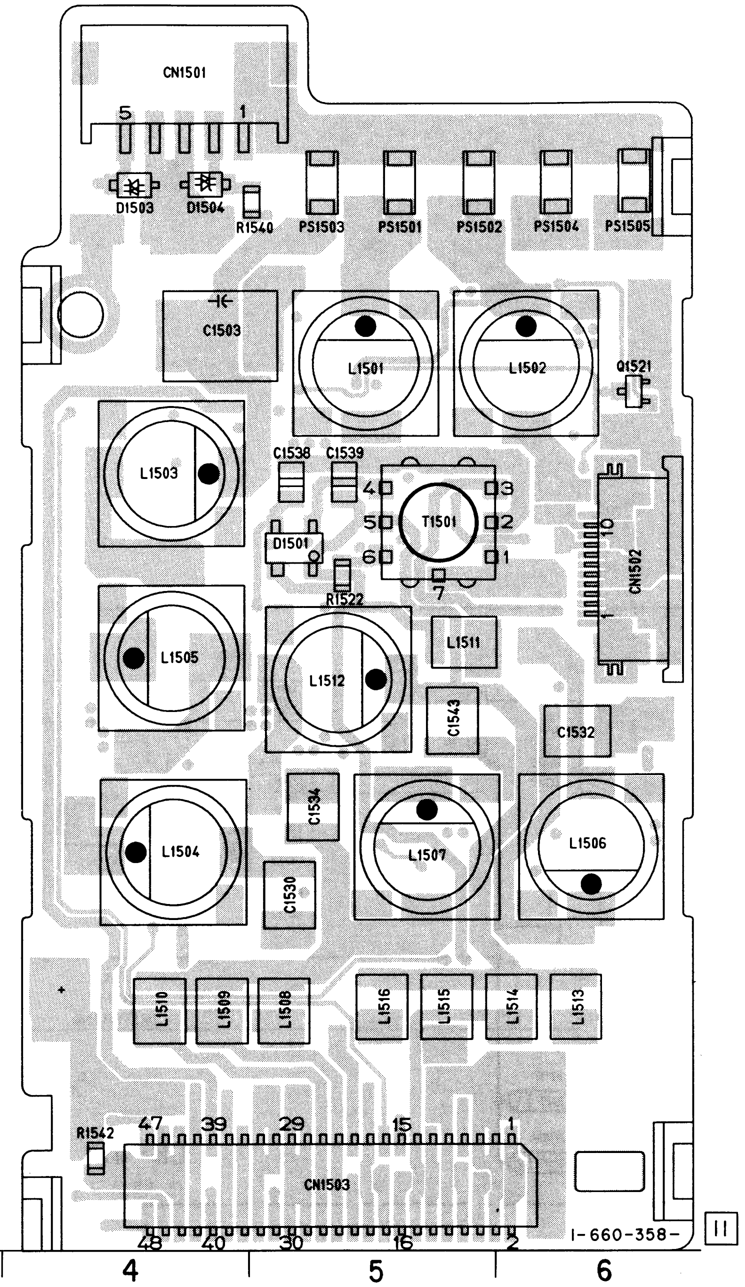
DD-87 (POWER SUPPLY) PRINTED WIRING BOARD

— Ref No. DD-87 BOARD: 20,000 series —

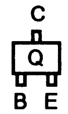
DD-87 BOARD (CONDUCTOR SIDE)


E
D
C
B
A
09
1
2
3
C1505
C1504
C1502
C1501
D1502
C1552
C1523
C1511
R1506
C1512
C1510
R1505
C1508
C1509
R1504
C1551
C1507
R1503
R1502
C1506
R1501
Q1519
R1507
C1522
R1516
32
17
33
16
R1537
R1538
R1543
R1517
R1518
R1508
C1513
C1516
C1528
C1524
R1536
IC1501
R1509
R1512
C1514
R1513
C1560
R1521
R1519
C1525
C1517
Q1518
48
1
C1515
C1533
Q1503
49
64
Q1501
C1521
C1520
C1519
C1526
R1520
C1527
C1518
Q1506
R1524
R1515
R1514
Q1502
C1529
R1523
R1530
Q1511
C1540
Q1504
C1542
Q1512
C1531
Q1513
R1528
Q1508
Q1507
R1531
R1527
R1533
Q1509
R1525
R1529
C1541
Q1505
R1534
Q1517
Q1514
R1541
Q1516
Q1510
R1526
Q1520
R1535
R1544
C1549
C1544
C1545
C1546
C1547
C1535
C1536
C1537
R1539
R1532
C1548
Q1515
S
D
G
E
C
B
K
A

DD-87 BOARD (COMPONENT SIDE)


CN1501
5
1
D1503
D1504
R1540
PS1503
PS1501
PS1502
PS1504
PS1505
C1503
L1501
L1502
Q1521
L1503
C1538
C1539
T1501
4
5
6
3
2
1
7
D1501
R1522
CN1502
10
1
L1505
L1512
L1511
C1543
C1532
L1504
C1534
L1507
L1506
C1530
L1510
L1509
L1508
L1516
L1515
L1514
L1513
R1542
47
39
29
15
1
CN1503
48
40
30
16
2
1-660-358-
4
5
6

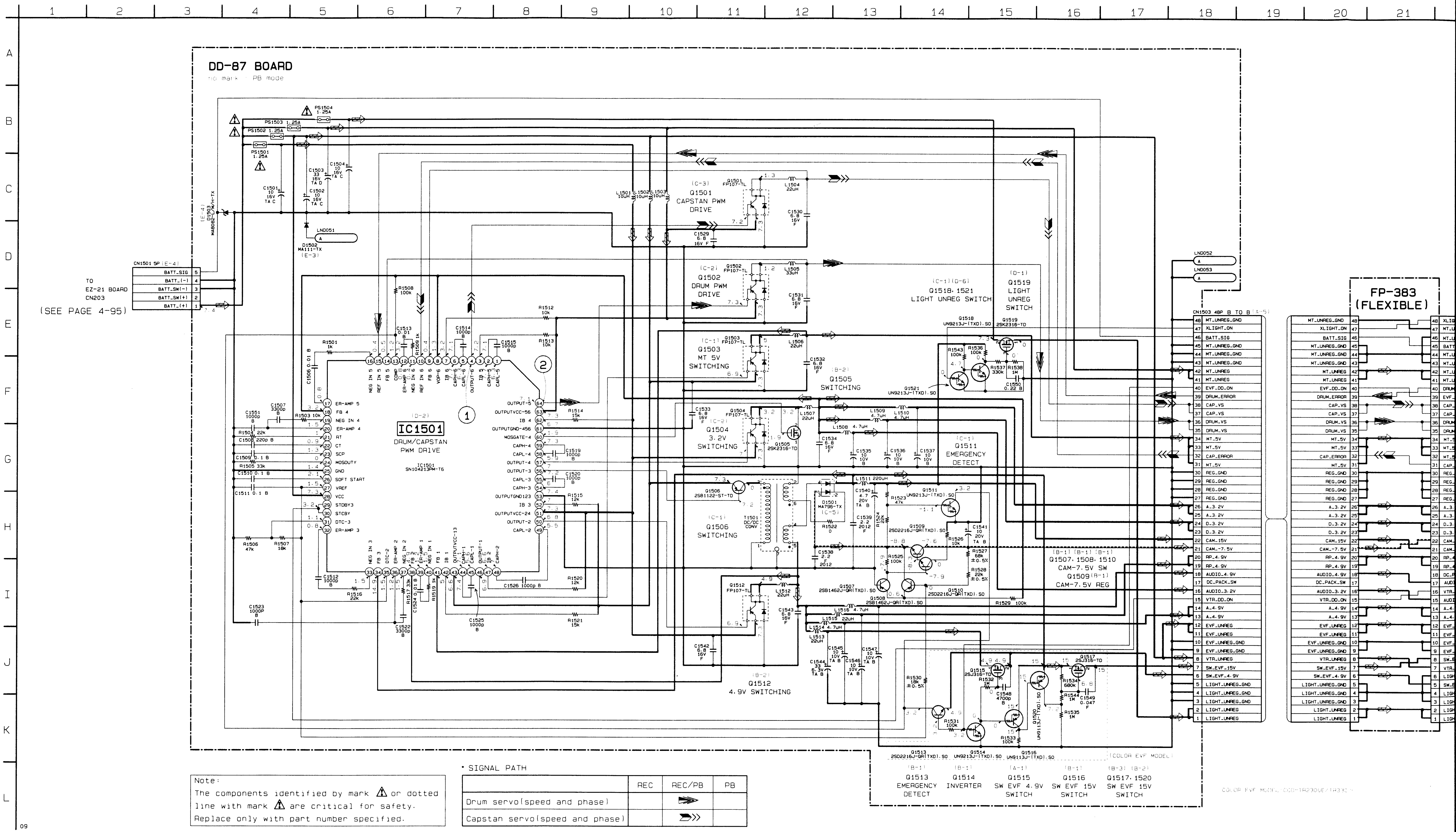
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

DD-87 (POWER SUPPLY), FP-383 (CONNECTOR) SCHEMATIC DIAGRAMS

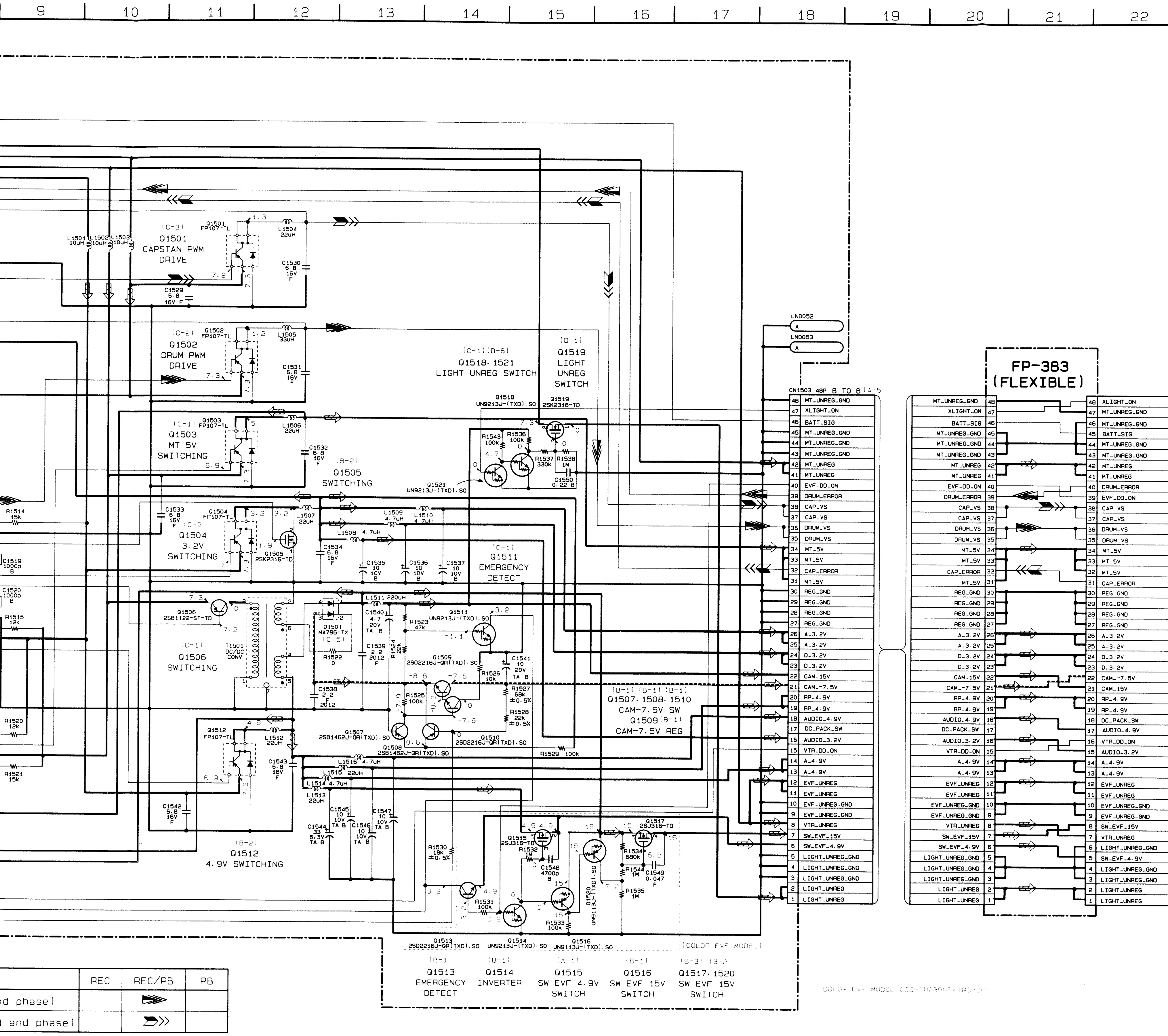
— Ref No. DD-87 BOARD: 20,000 series —


DD-87 BOARD
no mark : PB mode
FP-383 (FLEXIBLE)
TO EZ-21 BOARD CN203
(SEE PAGE 4-95)
CN1501 5P
BATT_SIG
BATT_(-)
BATT_SW(-)
BATT_SW(+)
BATT_(+)
PS1501 1.25A
PS1502 1.25A
PS1503 1.25A
PS1504 1.25A
IC1501
DRUM/CAPSTAN PWM DRIVE
IC1501 SN104213PM-T6
Q1501 CAPSTAN PWM DRIVE
Q1502 DRUM PWM DRIVE
Q1503 MT 5V SWITCHING
Q1504 3.2V SWITCHING
Q1505 SWITCHING
Q1506 SWITCHING
Q1511 EMERGENCY DETECT
Q1512 4.9V SWITCHING
Q1518, 1521 LIGHT UNREG SWITCH
Q1519 LIGHT UNREG SWITCH
Q1507, 1508, 1510 CAM-7.5V SW
Q1509 CAM-7.5V REG
T1501 DC/DC CONV
Q1513 EMERGENCY DETECT
Q1514 INVERTER
Q1515 SW EVF 4.9V SWITCH
Q1516 SW EVF 15V SWITCH
Q1517, 1520 SW EVF 15V SWITCH
(COLOR EVF MODEL)
CN1503 48P B TO B
LND051
LND052
LND053
MT_UNREG_GND
XLIGHT_ON
BATT_SIG
MT_UNREG
EVF_DD_ON
DRUM_ERROR
CAP_VS
DRUM_VS
MT_5V
CAP_ERROR
REG_GND
A_3.2V
D_3.2V
CAM_15V
CAM_-7.5V
RP_4.9V
AUDIO_4.9V
DC_PACK_SW
AUDIO_3.2V
VTR_DD_ON
A_4.9V
EVF_UNREG
EVF_UNREG_GND
VTR_UNREG
SW_EVF_15V
SW_EVF_4.9V
LIGHT_UNREG_GND
LIGHT_UNREG

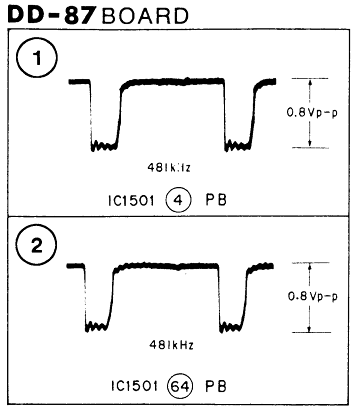
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

• SIGNAL PATH

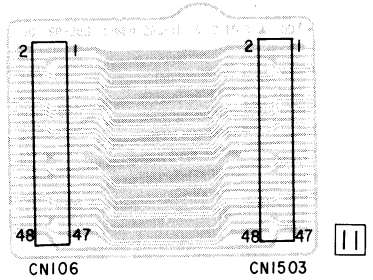
	REC	REC/PB	PB
Drum servo(speed and phase)		➤➤	
Capstan servo(speed and phase)		➤»	


9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
(C-3) Q1501 FP107-TL
Q1501
CAPSTAN PWM
DRIVE
L1501 10uH
L1502 10uH
L1503 10uH
L1504 22uH
C1529 6.8 16V F
C1530 6.8 16V F
(C-2) Q1502 FP107-TL
Q1502
DRUM PWM
DRIVE
L1505 33uH
C1531 6.8 16V F
(C-1) Q1503 FP107-TL
Q1503
MT 5V
SWITCHING
L1506 22uH
C1532 6.8 16V F
(B-2)
Q1505
SWITCHING
C1533 6.8 16V F
(C-2) Q1504 FP107-TL
Q1504
3.2V
SWITCHING
L1507 22uH
Q1505 2SK2316-TD
L1508 4.7uH
L1509 4.7uH
L1510 4.7uH
C1534 6.8 16V F
C1535 10 10V B
C1536 10 10V B
C1537 10 10V B
(C-1)(D-6)
Q1518, 1521
LIGHT UNREG SWITCH
(D-1)
Q1519
LIGHT
UNREG
SWITCH
Q1518 UN9213J-(TXD).SO
Q1519 2SK2316-TD
R1543 100k
R1536 100k
R1537 330k
R1538 1M
C1550 0.22 B
Q1521 UN9213J-(TXD).SO
(C-1)
Q1511
EMERGENCY
DETECT
R1514 15k
C1519 1000p B
C1520 1000p B
R1515 12k
Q1506 2SB1122-ST-TD
(C-1)
Q1506
SWITCHING
T1501 DC/DC CONV
D1501 MA796-TX (C-5)
R1522 0
L1511 220uH
C1540 4.7 20V TA B
C1539 2.2 2012 F
R1524 22k
R1523 47k
Q1511 UN9213J-(TXD).SO
Q1509 2SD2216J-QR(TXD).SO
R1526 10k
C1541 10 20V TA B
R1527 68k ±0.5%
R1528 22k ±0.5%
R1525 100k
C1538 2.2 F 2012
(B-1) (B-1) (B-1)
Q1507, 1508, 1510
CAM-7.5V SW
Q1509 (B-1)
CAM-7.5V REG
Q1507 2SB1462J-QR(TXD).SO
Q1508 2SB1462J-QR(TXD).SO
Q1510 2SD2216J-QR(TXD).SO
R1529 100k
R1520 12k
R1521 15k
Q1512 FP107-TL
L1512 22uH
C1543 6.8 16V F
L1516 4.7uH
L1515 22uH
L1514 4.7uH
L1513 22uH
C1542 6.8 16V F
(B-2)
Q1512
4.9V SWITCHING
C1544 33 6.3V TA B
C1545 10 10V TA B
C1546 10 10V TA B
C1547 10 10V TA B
R1530 18k ±0.5%
Q1515 2SJ316-TD
R1532 1M
C1548 4700p B
Q1517 2SJ316-TD
R1534 680k
R1544 1M
C1549 0.047 F
R1535 1M
R1531 100k
R1533 100k
Q1520 UN9113J-(TXD).SO
Q1513 2SD2216J-QR(TXD).SO
Q1514 UN9213J-(TXD).SO
Q1516 UN9113J-(TXD).SO
(COLOR EVF MODEL)
(B-1) Q1513 EMERGENCY DETECT
(B-1) Q1514 INVERTER
(A-1) Q1515 SW EVF 4.9V SWITCH
(B-1) Q1516 SW EVF 15V SWITCH
(B-3) (B-2) Q1517, 1520 SW EVF 15V SWITCH
COLOR EVF MODEL(CCD-TR2300E/TR330E)
LND052
LND053
CN1503 48P B TO B (A-5)
48 MT_UNREG_GND
47 XLIGHT_ON
46 BATT_SIG
45 MT_UNREG_GND
44 MT_UNREG_GND
43 MT_UNREG_GND
42 MT_UNREG
41 MT_UNREG
40 EVF_DD_ON
39 DRUM_ERROR
38 CAP_VS
37 CAP_VS
36 DRUM_VS
35 DRUM_VS
34 MT_5V
33 MT_5V
32 CAP_ERROR
31 MT_5V
30 REG_GND
29 REG_GND
28 REG_GND
27 REG_GND
26 A_3.2V
25 A_3.2V
24 D_3.2V
23 D_3.2V
22 CAM_15V
21 CAM_-7.5V
20 AP_4.9V
19 AP_4.9V
18 AUDIO_4.9V
17 DC_PACK_SW
16 AUDIO_3.2V
15 VTR_DD_ON
14 A_4.9V
13 A_4.9V
12 EVF_UNREG
11 EVF_UNREG
10 EVF_UNREG_GND
9 EVF_UNREG_GND
8 VTR_UNREG
7 SW_EVF_15V
6 SW_EVF_4.9V
5 LIGHT_UNREG_GND
4 LIGHT_UNREG_GND
3 LIGHT_UNREG_GND
2 LIGHT_UNREG
1 LIGHT_UNREG
FP-383
(FLEXIBLE)
48 XLIGHT_ON
47 MT_UNREG_GND
46 MT_UNREG_GND
45 BATT_SIG
44 MT_UNREG_GND
43 MT_UNREG_GND
42 MT_UNREG
41 MT_UNREG
40 DRUM_ERROR
39 EVF_DD_ON
38 CAP_VS
37 CAP_VS
36 DRUM_VS
35 DRUM_VS
34 MT_5V
33 MT_5V
32 MT_5V
31 CAP_ERROR
30 REG_GND
29 REG_GND
28 REG_GND
27 REG_GND
26 A_3.2V
25 A_3.2V
24 D_3.2V
23 D_3.2V
22 CAM_-7.5V
21 CAM_15V
20 AP_4.9V
19 AP_4.9V
18 DC_PACK_SW
17 AUDIO_4.9V
16 VTR_DD_ON
15 AUDIO_3.2V
14 A_4.9V
13 A_4.9V
12 EVF_UNREG
11 EVF_UNREG
10 EVF_UNREG_GND
9 EVF_UNREG_GND
8 SW_EVF_15V
7 VTR_UNREG
6 LIGHT_UNREG_GND
5 SW_EVF_4.9V
4 LIGHT_UNREG_GND
3 LIGHT_UNREG_GND
2 LIGHT_UNREG
1 LIGHT_UNREG
TO
VC-177 BOARD(14/14)
CN106
(SEE PAGE 4-65)
REC
REC/PB
PB
d phase)
and phase)

DD-87 BOARD



FP-383 BOARD


2
1
2
1
48
47
48
47
CN106
CN1503
11

MC-Service

SECTION 5
REPAIR PARTS LIST

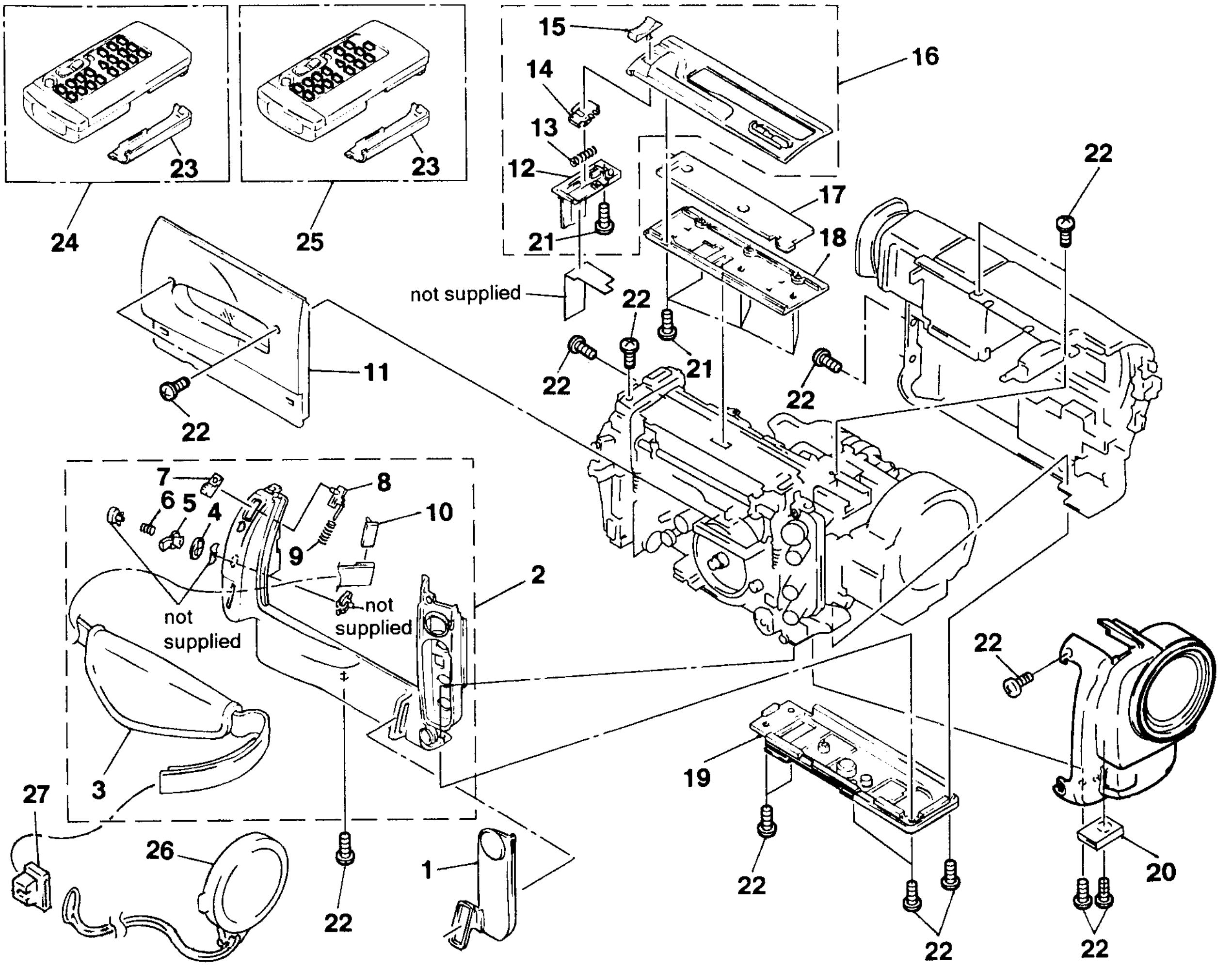
5-1. EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hong Kong model is abbreviated as HK.
- Tourist model is abbreviated as JE.
- Australian model is abbreviated as AUS.

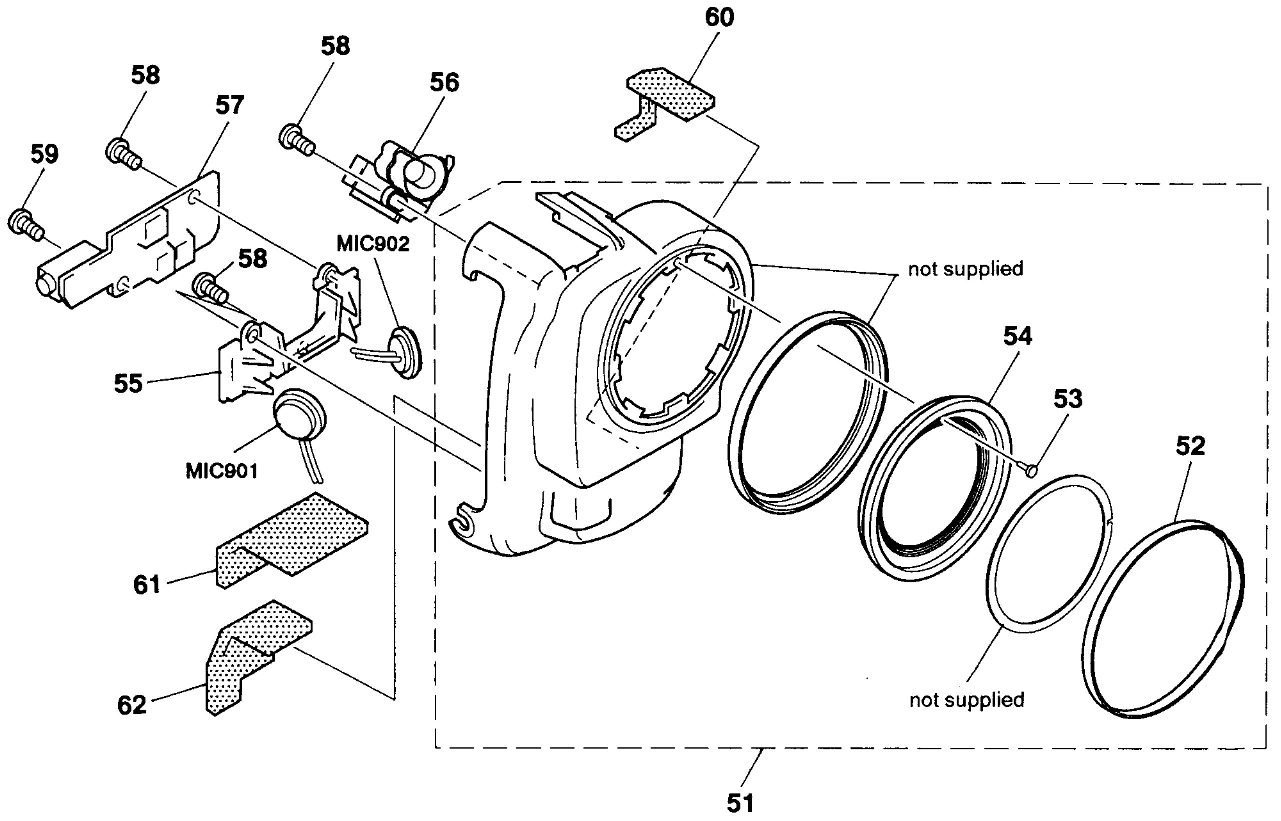
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1-1. CABINET (L) BLOCK ASSEMBLY



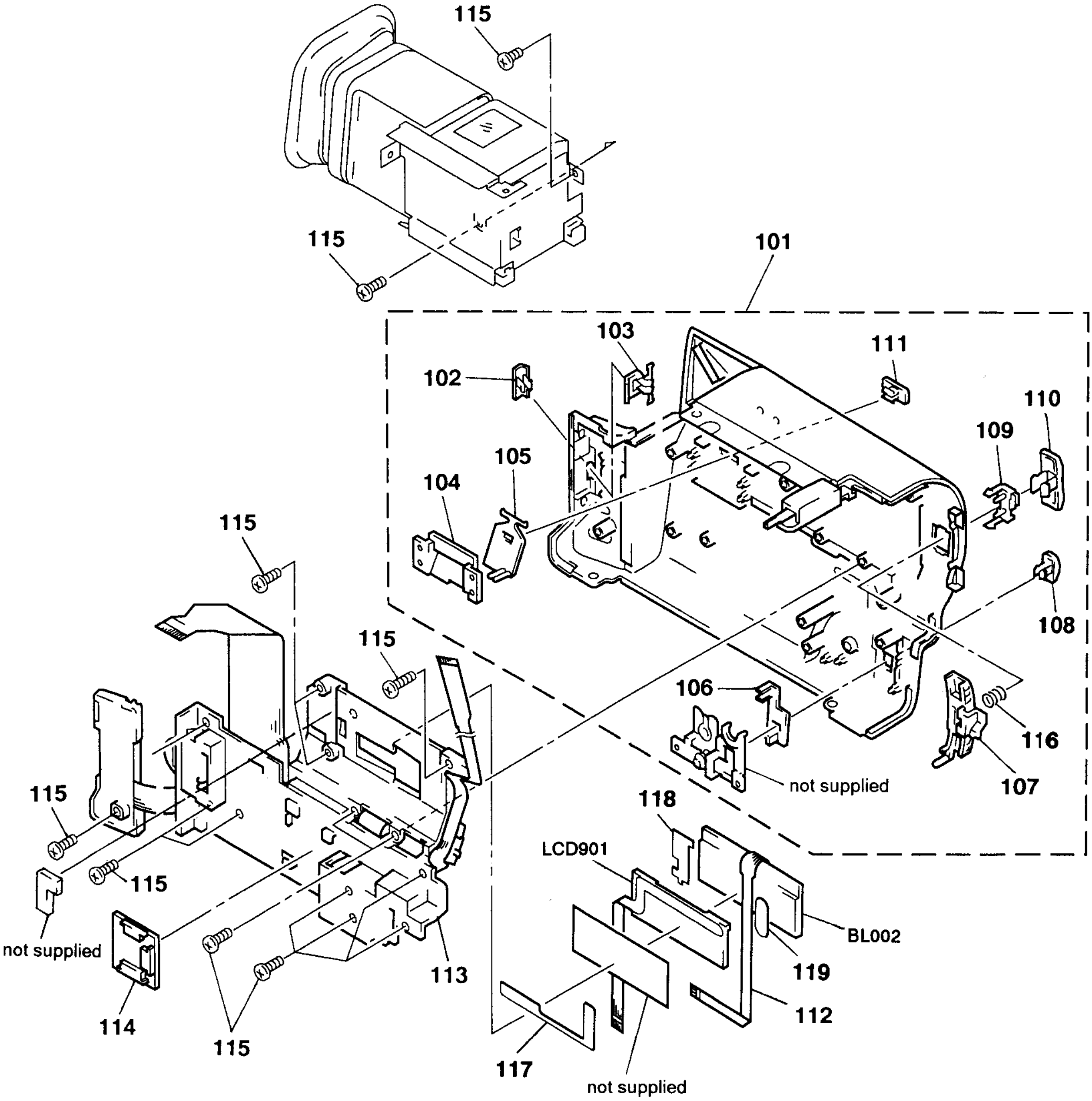
Ref. No.	Part No.	Description	Remark
1	3-970-389-01	LID, JACK	
2	X-3946-304-1	CABINET (L) ASSY	
3	3-969-339-01	BELT, GRIP	
4	3-970-854-01	SPRING, STAND-BY	
5	3-969-081-01	KNOB, STAND-BY	
6	3-578-221-00	SPRING, COMPRESSION	
7	3-968-779-01	BUTTON, EJECT	
8	3-968-780-01	LOCK, EJECT	
9	3-302-492-00	SPRING, COMPRESSION	
10	3-942-895-01	STOPPER, BELT	
11	X-3945-932-1	LID ASSY, CASSETTE	
12	3-968-773-01	BASE, ZOOM	
13	3-970-851-01	SPRING, COMPRESSION	
14	3-968-775-01	SLIDER, ZOOM	
15	3-968-774-01	LEVER, ZOOM	
16	X-3945-930-1	LS (UPPER) ASSY(TR2200E/TR3300E:AEP, UK)	
16	X-3946-017-1	LS (UPPER) ASSY (TR2300E)	
16	X-3946-295-1	LS (UPPER) ASSY (TR3300E:AUS, E)	
* 17	A-7072-699-A	FK-67 (XCR) BOARD, COMPLETE (TR3300E:AUS, E)	
* 17	A-7072-739-A	FK-67 (XP) BOARD, COMPLETE (TR2200E/TR3300E:AEP, UK)	
* 17	A-7072-758-A	FK-67 (XCPE) BOARD, COMPLETE (TR2300E)	
18	3-968-799-01	LS (LOWER)	
19	X-3945-935-1	BOTTOM ASSY, CABINET (TR2200E/TR3300E)	
19	X-3946-025-1	BOTTOM ASSY, CABINET (TR2300E)	
20	3-970-342-01	LID, CPC	
21	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
22	3-719-381-01	SCREW (M2X4)	
23	3-742-854-01	LID, BATTERY CASE (for RMT-715 or RMT-716)	
24	8-917-540-90	REMOCON RMT-715//M SET (TR2300E/TR3300E:AUS, E)	
25	8-917-541-90	REMOCON RMT-716//M SET (TR2200E/TR3300E:AEP, UK)	
26	X-3946-249-1	CAP ASSY, LENS	
27	3-970-638-01	STOPPER, CAP	

5-1-2. FRONT PANEL BLOCK ASSEMBLY


60
58
58
56
57
59
MIC902
58
not supplied
54
53
55
52
MIC901
61
62
not supplied
51

Ref. No.	Part No.	Description	Remark
51	X-3946-297-1	PANEL ASSY, F (TR2300E)	
51	X-3946-303-1	PANEL ASSY, F (TR2200E)	
51	X-3946-426-1	PANEL ASSY, F (TR3300E:AUS,E)	
51	X-3946-427-1	PANEL ASSY, F (TR3300E:AEP,UK)	
52	3-970-329-01	BAND, RING	
53	3-965-060-01	PIN, MF FIXED	
54	3-965-098-01	SCREW	
55	3-970-341-01	RETAINER, MICROHONE	
56	1-473-691-11	SWITCH BLOCK, CONTROL	
* 57	A-7072-694-A	MA-269 (XCR) BOARD, COMPLETE	
58	3-719-601-01	SCREW (B2X5), TAPPING	
59	3-713-786-21	SCREW (M2X3)	
* 60	3-971-675-01	CUSHION (1)	
* 61	3-971-677-01	CUSHION (3)	
* 62	3-971-676-01	CUSHION (2)	
MIC901	1-542-259-11	MICROPHONE, CAP (Lch)	
MIC902	1-542-259-11	MICROPHONE, CAP (Rch)	

5-1-3. CABINET (R) BLOCK ASSEMBLY

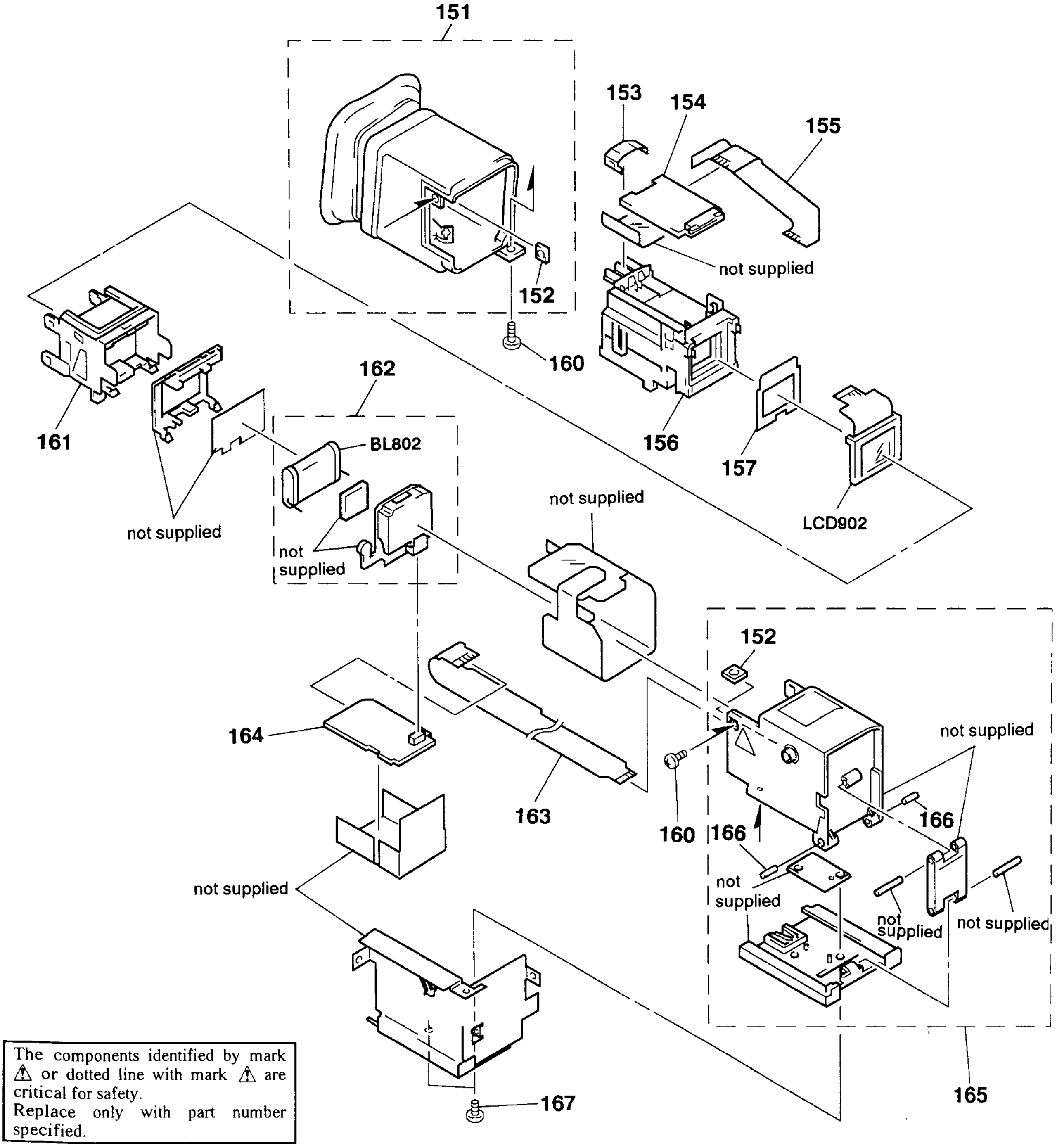

115
115
101
103
111
102
110
109
105
104
115
108
115
106
116
115
not supplied
107
118
LCD901
115
BL002
not supplied
113
119
112
114
115
117
not supplied

Ref. No.	Part No.	Description	Remark
101	X-3946-263-1	CABINET (R) ASSY (TR3300E:AUS, E)	
101	X-3946-293-1	CABINET (R) ASSY (TR3300E:AEP, UK)	
101	X-3946-296-1	CABINET (R) ASSY (TR2300E)	
101	X-3946-302-1	CABINET (R) ASSY (TR2200E)	
102	3-970-369-01	KNOB, SS MODE	
103	3-970-370-01	RETAINER, SS MODE	
104	3-970-359-01	SLIDER, AUTO LOCK	
105	3-970-344-01	SLIDER, AUTO LOCK	
106	3-970-362-01	SLIDER, FOCUS	
107	3-970-375-01	SLIDER, POWER	
108	3-970-350-01	KNOB, FOCUS	
109	3-970-349-01	LOCK, POWER	

Ref. No.	Part No.	Description	Remark
110	3-970-348-01	KNOB, POWER	
111	3-970-355-01	KNOB, AUTO LOCK	
112	1-660-297-11	FP-423 FLEXIBLE BOARD	
113	1-473-603-11	SWITCH BLOCK, CONTROL(CF-6400)	
* 114	A-7072-698-A	LC-53 (XCR) BOARD, COMPLETE	
115	3-719-601-01	SCREW (B2X5), TAPPING	
116	3-970-347-01	SPRING, COMPRESSION	
* 117	3-971-741-01	SHEET (LIGHT GUIDE PLATE)(TR3300E)	
* 118	3-971-742-01	SHEET, LIGHT INTERCEPTION (TR3300E)	
* 119	3-971-743-01	SHEET (LCD), ADHESIVE (TR3300E)	
BL002	1-517-527-11	LIGHT, BACK	
LCD901	1-801-206-11	DISPLAY PANEL, LIQUID CRYSTAL	

MC-Service

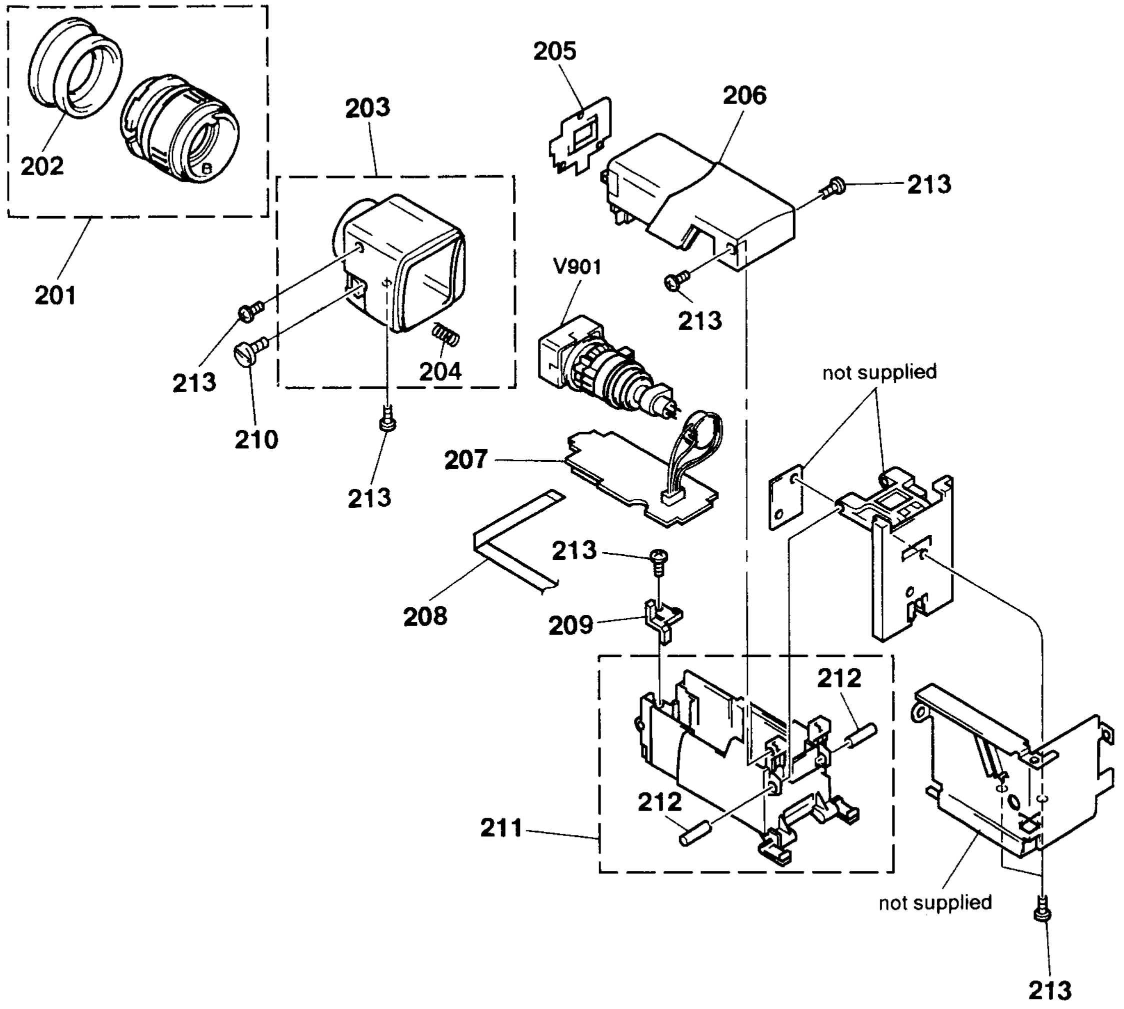
5-1-4. EVF BLOCK ASSEMBLY (COLOR) (TR2300E/TR3300E)


151
153
154
155
152
not supplied
160
162
BL802
161
156
157
not supplied
not supplied
not supplied
LCD902
152
not supplied
164
163
160
166
166
not supplied
not supplied
not supplied
not supplied
165
167

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
151	X-3946-298-1	CABINET ASSY, EVF(REAR)	
152	3-718-233-01	NUT, PLATE	
* 153	3-969-176-01	COVER, SENSOR	
* 154	A-7072-756-A	VF-96 (XCPE) BOARD, COMPLETE	
155	1-660-296-11	FP-420 FLEXIBLE BOARD	
156	X-3946-253-1	LENS ASSY, VF	
157	3-965-056-01	MASK, LCD	
160	3-968-729-01	SCREW (M2), LOCK ACE, P2	
161	X-3946-254-1	HOLDER ASSY, PRISM	
* 162	A-7072-757-A	LB-45 (XCPE) BOARD, COMPLETE	
163	1-660-285-11	FP-386 FLEXIBLE BOARD	
* 164	A-7072-755-A	VF-95 (XCPE) BOARD, COMPLETE	
165	X-3946-251-1	CABINET ASSY, EVF (FRONT)(TR3300E)	
165	X-3946-387-1	CABINET ASSY, EVF (FRONT)(TR2300E)	
166	3-963-817-01	SHAFT (1), TILT	
167	3-719-381-01	SCREW (M2X4)	
⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH)	
LCD902	8-753-016-07	LCX009AK-4	

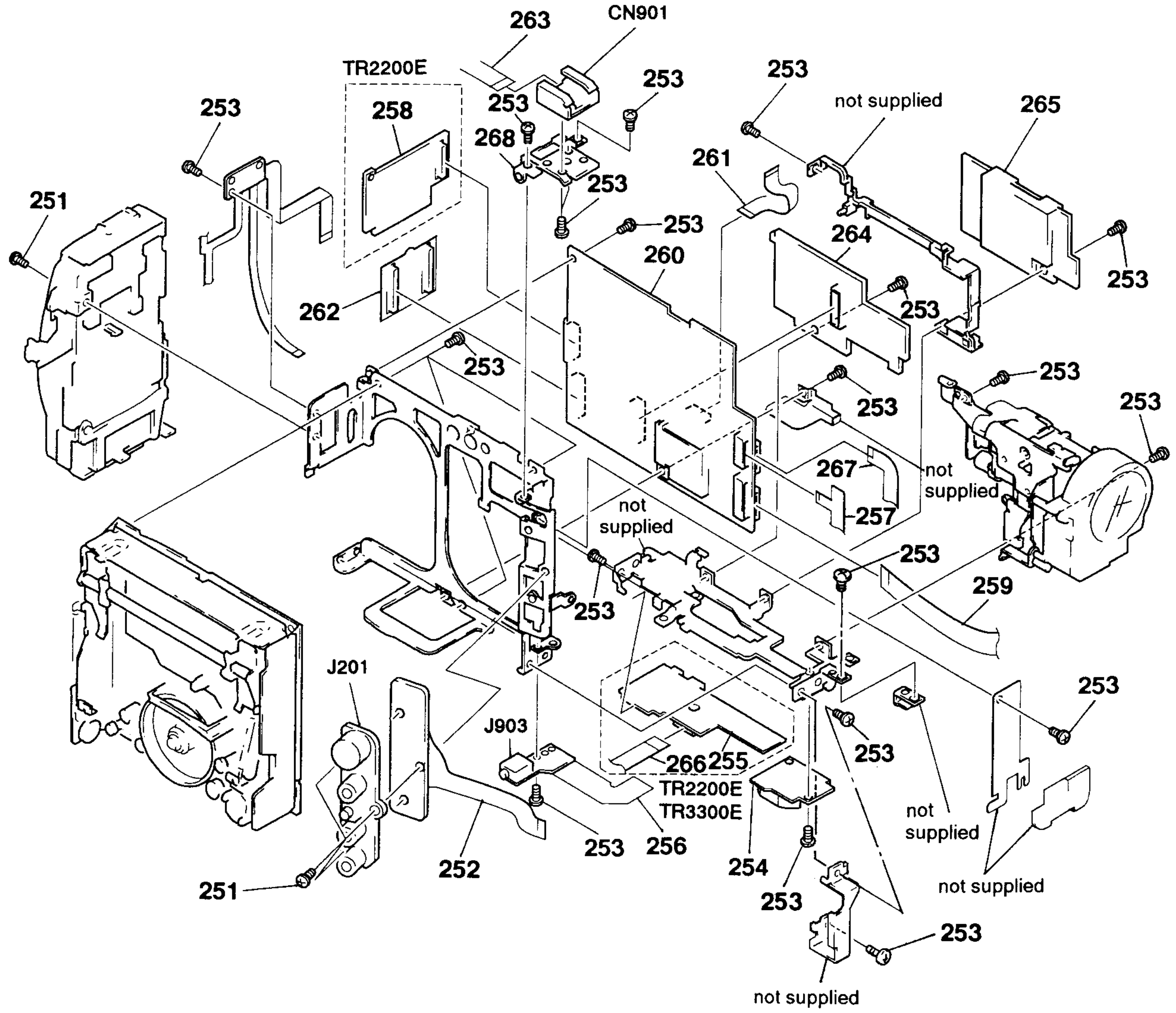
5-1-5. EVF BLOCK ASSEMBLY (WHITE/BLACK) (TR2200E)


205
206
203
213
202
V901
201
213
not supplied
213
204
210
213
207
213
213
208
209
212
212
211
not supplied
213

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

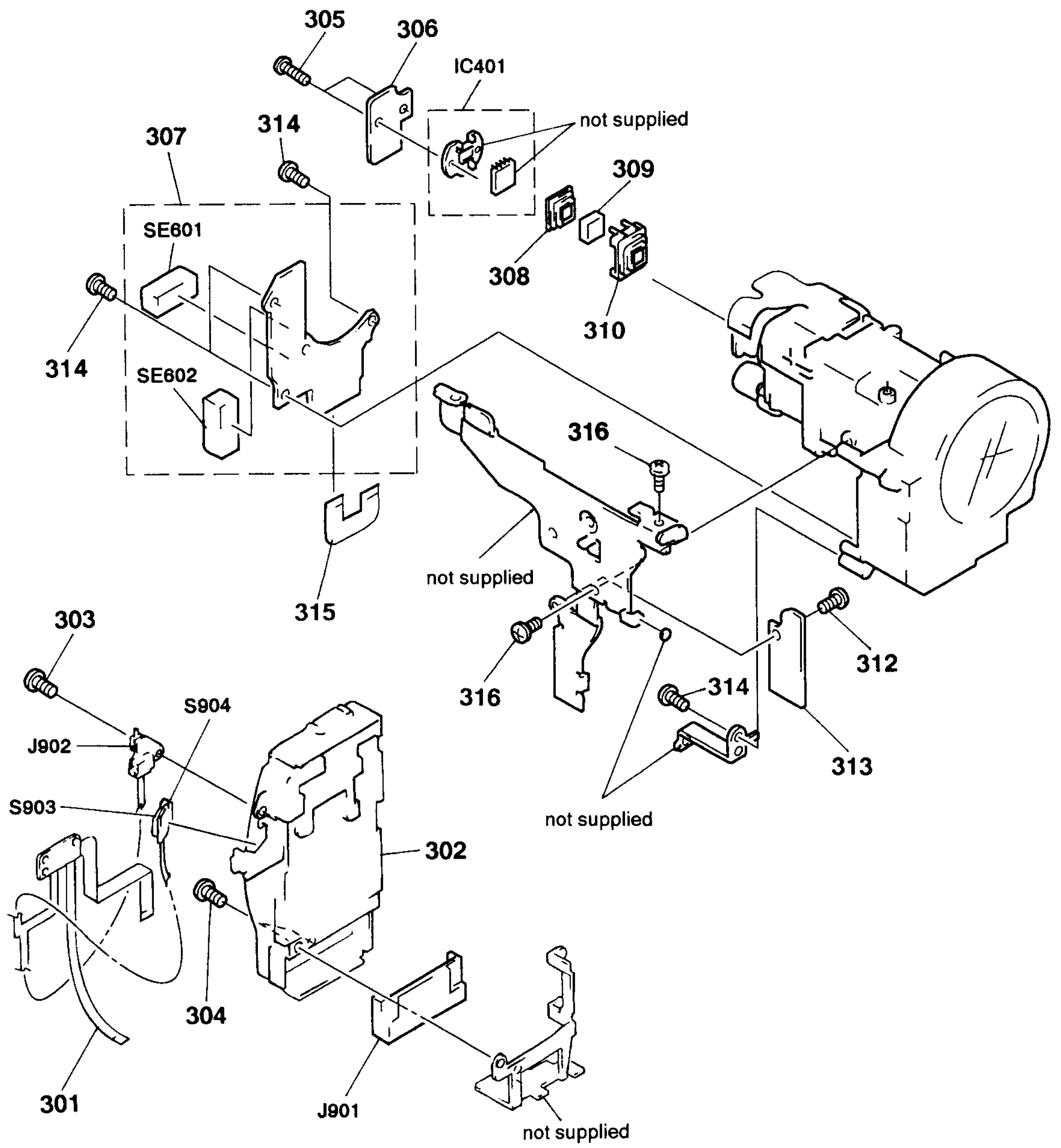
Ref. No.	Part No.	Description	Remark
201	X-3944-966-1	FINDER ASSY	
202	3-963-391-01	EYE CUP	
203	X-3946-300-1	CABINET ASSY (W/B), EVF REAR	
204	3-302-492-00	SPRING, COMPRESSION	
205	3-970-774-01	COVER, CRT	
206	3-970-776-01	CABINET (UPPER)(W/B), VF	
* 207	A-7066-841-A	VF-104 (XP) BOARD, COMPLETE	
208	1-660-303-11	FP-395 FLEXIBLE BOARD	
209	3-970-775-01	GUIDE (W/B), TALLY LIGHT	
210	3-968-334-01	SCREW, F LOCK	
211	X-3946-301-1	CABINET ASSY (W/B), EVF LOWER	
212	3-963-817-01	SHAFT (1), TILT	
213	3-719-601-11	SCREW (B2X5), TAPPING	
⚠V901	1-452-673-31	CRT ASSY	

5-1-6. MAIN BOARDS ASSEMBLY


263
CN901
TR2200E
253
258
253
253
268
not supplied
265
253
251
261
253
253
264
260
253
262
253
253
253
253
253
267
not supplied
257
not supplied
253
253
259
J201
253
J903
253
266
255
TR2200E
TR3300E
not supplied
253
256
252
254
not supplied
251
253
253
not supplied

Ref. No.	Part No.	Description	Remark
251	3-719-381-01	SCREW (M2X4)	
252	1-660-278-11	FP-378 FLEXIBLE BOARD	
253	3-713-786-21	SCREW (M2X3)	
* 254	A-7072-690-A	LI-57 (XCR) BOARD, COMPLETE	
* 255	A-7072-559-A	EZ-21 (HP) BOARD, COMPLETE	(TR2200E/TR3300E)
256	1-660-279-11	FP-379 FLEXIBLE BOARD	
257	1-660-293-11	FP-376 FLEXIBLE BOARD	
* 258	A-7072-700-A	MM-32 (XCR) BOARD, COMPLETE (TR3300E)	
259	1-661-228-11	FP-462 FLEXIBLE BOARD	
* 260	A-7092-915-A	VC-177 (XP) BOARD, COMPLETE (TR2200E)	
* 260	A-7092-932-A	VC-177 (XCPE) BOARD, COMPLETE (TR2300E)	
* 260	A-7092-986-A	VC-177 (XCRP) BOARD, COMPLETE	(TR3300E:AEP, UK)
* 260	A-7092-987-A	VC-177 (XCRPE) BOARD, COMPLETE	(TR3300E:AUS, E)
261	1-660-295-11	FP-419 FLEXIBLE BOARD	
262	1-660-283-11	FP-383 FLEXIBLE BOARD	
263	1-660-300-11	FP-426 FLEXIBLE BOARD	
* 264	A-7092-917-A	HI-40 (XP) BOARD, COMPLETE (TR2200E)	
* 264	A-7092-933-A	HI-40 (XCPE) BOARD, COMPLETE	(TR2300E/TR3300E)
* 265	A-7092-871-A	DD-87 (XCR) BOARD, COMPLETE	(TR2300E/TR3300E)
* 265	A-7092-916-A	DD-87 (XP) BOARD, COMPLETE (TR2200E)	
266	1-660-298-11	FP-401 FLEXIBLE BOARD	
267	1-660-531-11	FP-429 FLEXIBLE BOARD	
268	3-970-339-01	BRACKET, SHOE	
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P	
J201	1-537-747-21	TERMINAL BOARD	
J903	1-695-514-21	JACK (SMALL TYPE) 1P (HEADPHONE)	

5-1-7. BATTERY PANEL BLOCK ASSEMBLY AND CCD BLOCK ASSEMBLY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306
IC401
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314
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SE601
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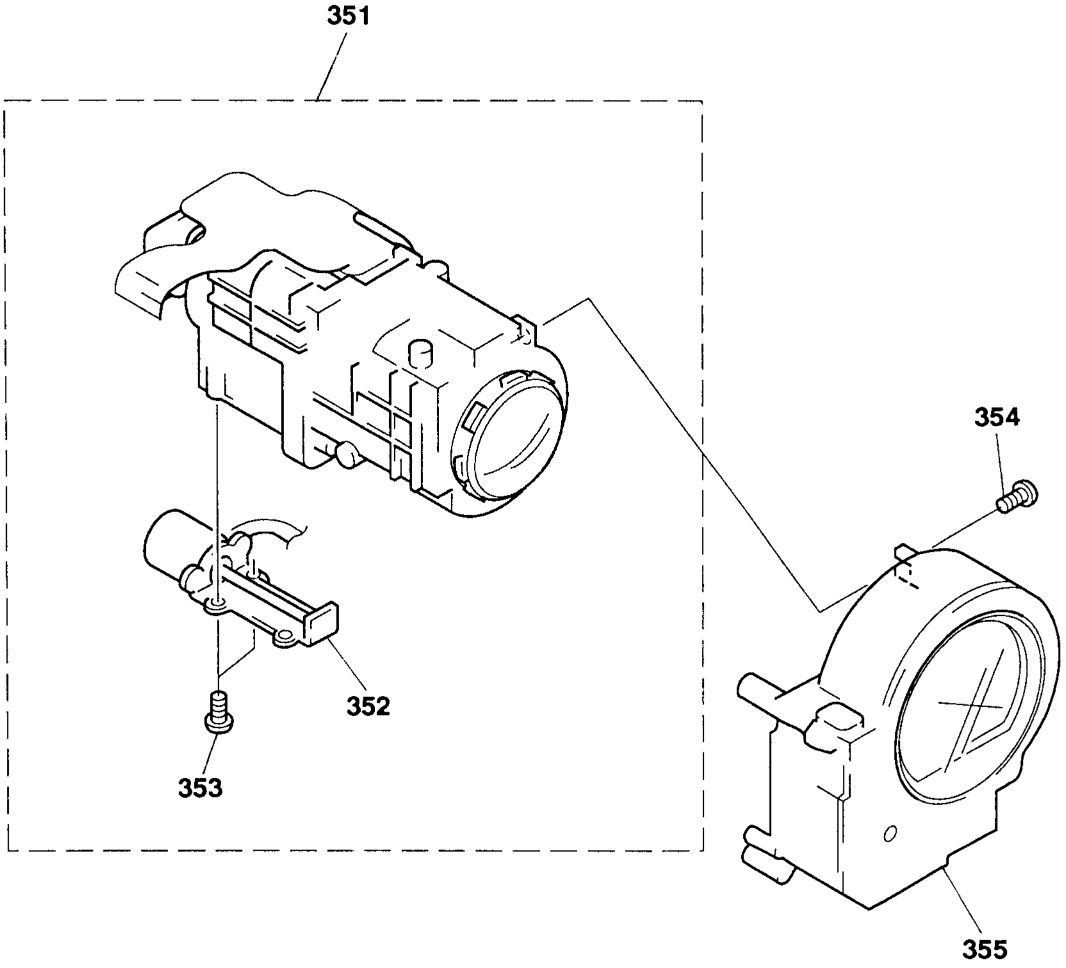
314
SE602
316
not supplied
303
315
312
316
314
S904
J902
313
S903
not supplied
302
304
301
J901
not supplied

Be sure to read "Note on the CCD Imager replacement" on page 4–8 when changing the CCD imager.

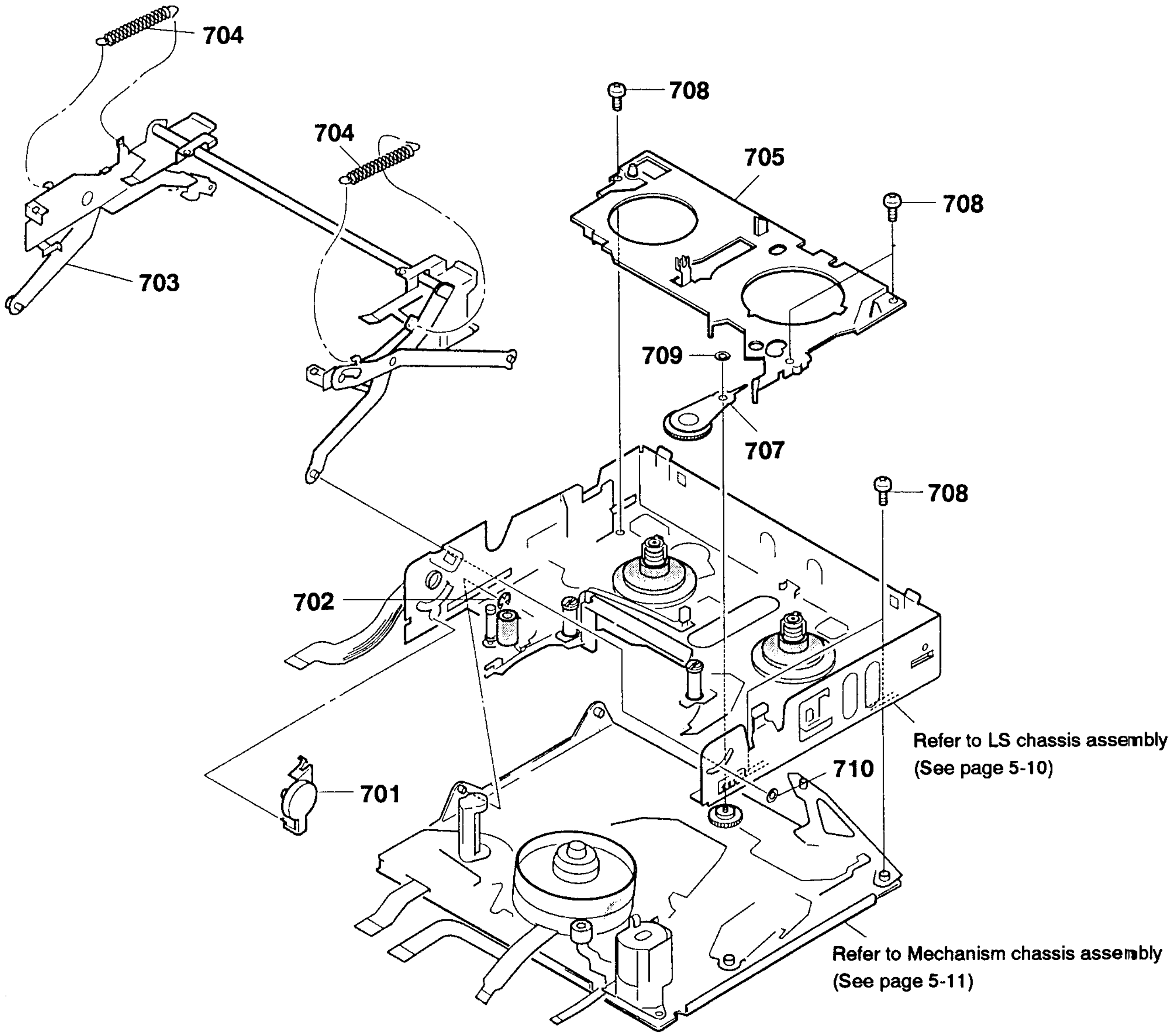
Ref. No.	Part No.	Description	Remark
301	1-661-052-11	FP-457 FLEXIBLE BOARD	
302	X-3945-929-1	PANEL ASSY, BATTERY	
303	3-719-381-01	SCREW (M2X4)	
304	3-968-729-01	SCREW (M2), LOCK ACE, P2	
305	3-318-203-11	SCREW (B1.7X6), TAPPING	
* 306	A-7072-691-A	CD-149 (XCR) BOARD, COMPLETE	
* 307	A-7072-692-A	VP-45 (XCR) BOARD, COMPLETE	
308	3-968-054-11	RUBBER (FM), SHIELD	
309	1-547-767-41	FILTER BLOCK, OPTICAL	
310	3-963-467-11	ADAPTOR (FH), CCD FITTING	
312	3-713-786-21	SCREW (M2X3)	
* 313	A-7072-693-A	AV-36 (XCR) BOARD, COMPLETE (TR2300E/TR3300E:AUS, E)	
* 313	A-7072-740-A	AV-36 (XP) BOARD, COMPLETE (TR2200E/TR3300E:AEP, UK)	
314	3-719-601-01	SCREW (B2X5), TAPPING	
315	1-660-294-11	FP-400 FLEXIBLE BOARD	
316	3-713-791-01	SCREW (M1.7X4)	
IC401	A-7030-744-A	CCD BLOCK ASSY (AUTO)(079 SERVICE) (CCD IMAGER)	
J901	1-694-076-11	TERMINAL BOARD, BATTERY (TR2300E)	
J901	1-694-076-21	TERMINAL BOARD, BATTERY(TR2200E/TR3300E)	
J902	1-565-276-21	JACK, ULTRA SMALL 1P (LANC)	
S903	1-571-315-11	SWITCH, KEY BOARD (START/STOP)	
S904	1-553-977-00	SWITCH, SLIDE (STANDBY/LOCK)	
SE601	1-810-889-81	SENSOR, ANGULAR VELOCITY (PITCH)	
SE602	1-810-889-71	SENSOR, ANGULAR VELOCITY (YAW)	

5-1-8. ZOOM LENS (VCL-4020VA) BLOCK ASSEMBLY



Ref. No.	Part No.	Description	Remark
351	3-709-110-01	MAIN TUBE, MIRROR UNIT	
352	3-709-111-01	MOTOR, FOCUS	
353	3-707-946-01	SCREW 1.7X4.5	
354	3-708-249-01	SCREW, VAP UNIT	
355	A-7030-757-A	VAP UNIT	

5-1-9. CASSETTE COMPARTMENT ASSEMBLY


704
708
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705
708
703
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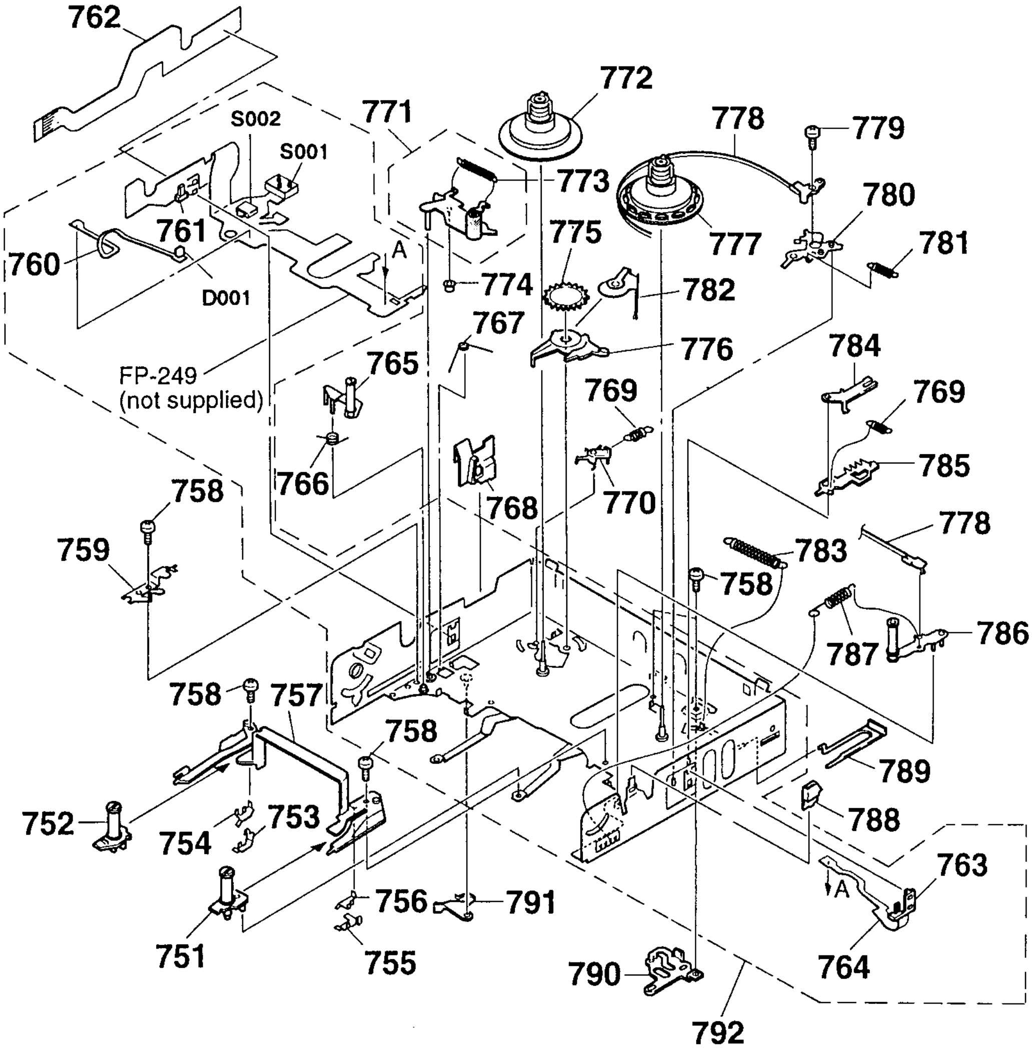
708
702
Refer to LS chassis assembly
(See page 5-10)
710
701
Refer to Mechanism chassis assembly
(See page 5-11)

Ref. No.	Part No.	Description	Remark
701	A-7040-421-A	DAMPER ASSY	
702	7-624-102-04	STOP RING 1.5, TYPE -E	
703	X-3945-400-1	CASSETTE COMPARTMENT ASSY	
704	3-965-587-01	SPRING, TENSION	
705	3-965-584-01	RETAINER, GOOSENECK	

Ref. No.	Part No.	Description	Remark
707	X-3945-399-1	GEAR ASSY, GOOSENECK	
708	3-947-503-01	SCREW (M1.4X2.5)	
709	3-331-007-21	WASHER	
710	3-727-176-01	WASHER, STOPPER	

5-1-10. LS CHASSIS ASSEMBLY


762
772
S002
771
778
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S001
773
780
761
775
777
781
760
A
774
782
D001
767
776
784
FP-249
(not supplied)
765
769
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785
758
766
768
770
778
759
783
758
787
786
758
757
758
789
752
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788
763
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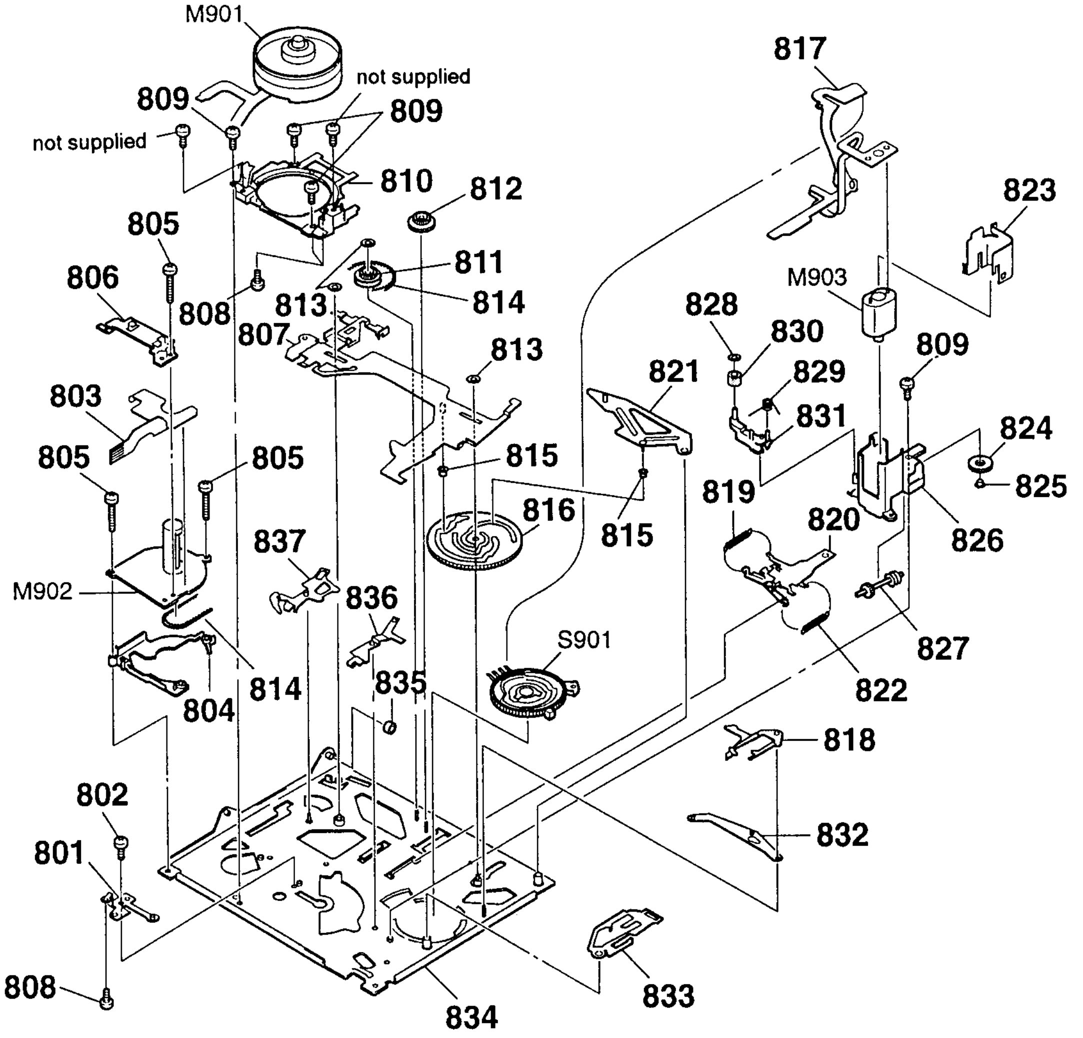
756
791
751
755
790
764
792

Ref. No.	Part No.	Description	Remark
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-A	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1.4X2.5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER (T), SENSOR	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER (S), SENSOR	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING, TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-01	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-01	RATCHET, T	
771	X-3945-394-1	ARM ASSY, PINCH	
772	X-3945-398-1	DECK ASSY, REEL, T	
773	3-965-648-01	SPRING (PINCH), TENSION	
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1.4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING, TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-A	CHASSIS (S1) ASSY, LS	
D001	8-719-988-42	DIODE GL453	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (Hi8 MP, ME/MP, REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C. LOCK)	

5-1-11. MECHANISM CHASSIS ASSEMBLY


M901
817
809
not supplied
809
not supplied
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812
823
805
806
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813
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M903
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830
813
809
821
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825
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816
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M902
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S901
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804
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818
802
832
801
808
833
834

Ref. No.	Part No.	Description	Remark
801	3-965-525-01	GROUND, SHAFT	
802	3-965-550-02	SCREW (M1.7X1.6)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-965-545-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1.4 X 6.5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	X-3945-387-1	SLIDER ASSY, M	
808	3-965-588-01	SCREW (M1.4)	
809	3-947-503-01	SCREW (M1.4X2.5)	
810	A-7040-416-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING, TENSION	
820	X-3945-388-1	SLIDER ASSY, GL	
821	3-965-532-01	ARM, LS	
822	3-965-535-01	SPRING, TENSION	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING, TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	
835	3-965-526-01	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
M901	A-7048-810-A	DRUM ASSY (DGH-0C4A-R)	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-15	SWITCH, ROTARY (ENCODER)	

AV-36 **CD-149**

5-2. ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Hong Kong model is abbreviated as HK.
- Tourist model is abbreviated as JE.
- Australian model is abbreviated as AUS.

Ref. No.	Part No.	Description	Remark
*	A-7072-693-A	AV-36 (XCR) BOARD, COMPLETE	(TR2300E/TR3300E:AUS, E)
		***************************	
*	A-7072-740-A	AV-36 (XP) BOARD, COMPLETE	(TR2200E/TR3300E:AEP, UK)
		**************************	
			(Ref. No. 3, 000 Series)
		< CAPACITOR >	
C251	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C252	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C253	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C254	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C255	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C263	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C264	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
		< CONNECTOR >	
CN251	1-766-344-21	CONNECTOR, FFC/FPC 14P	
CN252	1-573-923-21	CONNECTOR, FFC/FPC (ZIF) 14P	
		< DIODE >	
D251	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D252	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D253	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D254	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D255	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D256	8-719-420-14	DIODE MA8082-M	
		< COIL >	
L251	1-414-072-11	INDUCTOR 1uH	
L252	1-412-963-11	INDUCTOR 100uH	(TR2200E/TR3300E:AEP, UK)
L253	1-412-963-11	INDUCTOR 100uH	(TR2200E/TR3300E:AEP, UK)
L254	1-412-963-11	INDUCTOR 100uH	(TR2200E/TR3300E:AEP, UK)
		< TRANSISTOR >	
Q251	8-729-101-07	TRANSISTOR 2SB798-DL	
Q252	8-729-425-64	TRANSISTOR 2SD2216Q	
		< RESISTOR >	
R251	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
R252	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R253	1-216-820-11	METAL CHIP 820 5% 1/16W	
R254	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R255	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E/TR3300E:AUS, E)
R256	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E/TR3300E:AUS, E)
R257	1-216-864-11	METAL CHIP 0 5% 1/16W	
R258	1-216-864-11	METAL CHIP 0 5% 1/16W	
R259	1-216-864-11	METAL CHIP 0 5% 1/16W	
R260	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E/TR3300E:AUS, E)
R261	1-216-864-11	METAL CHIP 0 5% 1/16W	
R262	1-216-864-11	METAL CHIP 0 5% 1/16W	
R263	1-216-864-11	METAL CHIP 0 5% 1/16W	
R264	1-216-864-11	METAL CHIP 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
*	A-7072-691-A	CD-149 (XCR) BOARD, COMPLETE	
		*****************************	
			(Ref. No. 3, 000 Series)
			(IC401 is not included to the mounted board.)
		< CAPACITOR >	
C401	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C405	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	
C406	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	
		< CONNECTOR >	
CN401	1-766-627-21	CONNECTOR, FFC/FPC 16P	
		< IC >	
IC401	A-7030-744-A	CC D BLOCK ASSY (AUTO)(079 SERVICE)	(CCD IMAGER)

Be sure to read "Note on the CCD Imager replacement" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description				Remark
		< COIL >				
L401	1-412-963-11	INDUCTOR 100uH				
		< TRANSISTOR >				
Q401	8-729-232-86	TRANSISTOR	2SK1875-BL/V			
Q402	8-729-117-73	TRANSISTOR	2SC4178-F14			
		< RESISTOR >				
R403	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R404	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R407	1-216-295-91	CONDUCTOR, CHIP (2012)				

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* A-7092-871-A DD-87 (XCR) BOARD, COMPLETE (TR2300E/TR3300E)

****

* A-7092-916-A DD-87 (XP) BOARD, COMPLETE (TR2200E)

****

(Ref. No. 20,000 Series)

Ref. No.	Part No.	Description				Remark
		< CAPACITOR >				
C1501	1-135-159-21	TANTALUM CHIP	10uF	10%	20V	
C1502	1-135-159-21	TANTALUM CHIP	10uF	10%	20V	
C1503	1-135-165-11	TANTAL. CHIP	33uF	20%	16V	
C1504	1-135-159-21	TANTALUM CHIP	10uF	10%	20V	
C1506	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1507	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C1508	1-162-960-11	CERAMIC CHIP	220PF	10%	50V	
C1509	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1510	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1511	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1512	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1513	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1514	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1515	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1519	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1520	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1522	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C1523	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1524	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1525	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1526	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1529	1-165-178-11	CERAMIC CHIP	6.8uF		16V	
C1530	1-165-178-11	CERAMIC CHIP	6.8uF		16V	
C1531	1-165-178-11	CERAMIC CHIP	6.8uF		16V	
C1532	1-165-178-11	CERAMIC CHIP	6.8uF		16V	
C1533	1-165-178-11	CERAMIC CHIP	6.8uF		16V	
C1534	1-165-178-11	CERAMIC CHIP	6.8uF		16V	
C1535	1-135-216-11	TANTALUM CHIP	10uF	20%	10V	

Ref. No.	Part No.	Description				Remark
C1536	1-135-216-11	TANTALUM CHIP	10uF	20%	10V	
C1537	1-135-216-11	TANTALUM CHIP	10uF	20%	10V	
C1538	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C1539	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C1540	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V	
C1541	1-113-985-11	TANTAL. CHIP	10uF	20%	20V	
C1542	1-165-178-11	CERAMIC CHIP	6.8uF		16V	
C1543	1-165-178-11	CERAMIC CHIP	6.8uF		16V	
C1544	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V	
C1545	1-135-216-11	TANTALUM CHIP	10uF	20%	10V	
C1546	1-135-216-11	TANTALUM CHIP	10uF	20%	10V	
C1547	1-135-216-11	TANTALUM CHIP	10uF	20%	10V	
C1548	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	(TR2300E/TR3300E)
C1549	1-164-361-11	CERAMIC CHIP	0.047uF		16V	(TR2300E/TR3300E)
C1550	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1551	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
		< CONNECTOR >				
CN1501	1-569-775-21	PIN, CONNECTOR 5P				
CN1503	1-691-542-21	CONNECTOR, BOARD TO BOARD 48P				
		< DIODE >				
D1501	8-719-027-77	DIODE	MA796-TX			
D1502	8-719-404-49	DIODE	MA111			
D1503	8-719-420-14	DIODE	MA8082-M			
		< IC >				
IC1501	8-759-350-29	IC	SN104213PM-T6			
		< COIL >				
L1501	1-424-653-11	COIL, CHOKE 10uH				
L1502	1-424-653-11	COIL, CHOKE 10uH				
L1503	1-424-653-11	COIL, CHOKE 10uH				
L1504	1-424-674-11	COIL, CHOKE 22uH				
L1505	1-424-675-11	COIL, CHOKE 33uH				
L1506	1-424-674-11	COIL, CHOKE 22uH				
L1507	1-424-674-11	COIL, CHOKE 22uH				
L1508	1-412-056-11	INDUCTOR CHIP 4.7uH				
L1509	1-412-056-11	INDUCTOR CHIP 4.7uH				
L1510	1-412-056-11	INDUCTOR CHIP 4.7uH				
L1511	1-412-066-21	INDUCTOR CHIP 220uH				
L1512	1-424-674-11	COIL, CHOKE 22uH				
L1513	1-412-060-11	INDUCTOR CHIP 22uH				
L1514	1-412-056-11	INDUCTOR CHIP 4.7uH				
L1515	1-412-060-11	INDUCTOR CHIP 22uH				
L1516	1-412-056-11	INDUCTOR CHIP 4.7uH				

< IC LINK >

Ref. No.	Part No.	Description	Remark
⚠PS1501	1-533-711-21	LINK, IC (1.25A)(SMD)	
⚠PS1502	1-533-711-21	LINK, IC (1.25A)(SMD)	
⚠PS1503	1-533-711-21	LINK, IC (1.25A)(SMD)	
⚠PS1504	1-533-711-21	LINK, IC (1.25A)(SMD)	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q1501	8-729-033-14	TRANSISTOR FP107-TL	
Q1502	8-729-033-14	TRANSISTOR FP107-TL	
Q1503	8-729-033-14	TRANSISTOR FP107-TL	
Q1504	8-729-033-14	TRANSISTOR FP107-TL	
Q1505	8-729-030-75	TRANSISTOR 2SK2316-TD	
Q1506	8-729-804-41	TRANSISTOR 2SB1122-S	
Q1507	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1508	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1509	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1510	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1511	8-729-429-18	TRANSISTOR UN9213	
Q1512	8-729-033-14	TRANSISTOR FP107-TL	
Q1513	8-729-425-64	TRANSISTOR 2SD2216Q	(TR2300E/TR3300E)
Q1514	8-729-429-18	TRANSISTOR UN9213	(TR2300E/TR3300E)
Q1515	8-729-015-60	TRANSISTOR 2SJ316-TD	(TR2300E/TR3300E)
Q1516	8-729-428-88	TRANSISTOR UN9113	(TR2300E/TR3300E)
Q1517	8-729-015-60	TRANSISTOR 2SJ316-TD	(TR2300E/TR3300E)
Q1518	8-729-429-18	TRANSISTOR UN9213	
Q1519	8-729-030-75	TRANSISTOR 2SK2316-TD	
Q1520	8-729-428-88	TRANSISTOR UN9113	(TR2300E/TR3300E)
Q1521	8-729-429-18	TRANSISTOR UN9213	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R1501	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1503	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1504	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1505	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1506	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1507	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R1508	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1509	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1512	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1513	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1514	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1515	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1516	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1517	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1519	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1520	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1521	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1522	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1523	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1524	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1525	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1526	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1527	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R1528	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R1529	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1530	1-218-877-11	METAL CHIP 18K 0.50% 1/16W	
R1531	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR2300E/TR3300E)
R1532	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR2300E/TR3300E)
R1533	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR2300E/TR3300E)
R1534	1-216-855-11	METAL CHIP 680K 5% 1/16W	(TR2300E/TR3300E)
R1535	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR2300E/TR3300E)
R1536	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1537	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R1538	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1543	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1544	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR2300E/TR3300E)

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T1501	1-426-938-11	TRANSFORMER, DC/DC CONVERTER	

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* A-7072-559-A EZ-21 (HP) BOARD, COMPLETE (TR2200E/TR3300E)

****

(Ref. No. 6,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C201	1-164-156-11	CERAMIC CHIP 0.1uF 25V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN201	1-537-439-11	TARMINAL BOARD, CONNECTOR	
CN202	1-569-775-21	PIN, CONNECTOR 5P	
CN203	1-580-057-11	PIN, CONNECTOR 4P	
CN204	1-774-641-21	CONNECTOR, FFC/FPC 18P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D201	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D202	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D203	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D204	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D205	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D206	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D207	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D209	8-719-404-49	DIODE MA111	
D210	8-719-404-49	DIODE MA111	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
D211	8-719-404-49	DIODE MA111	
D212	8-719-421-27	DIODE MA728	
D213	8-719-421-27	DIODE MA728	
D216	8-719-404-49	DIODE MA111	
D217	8-719-404-49	DIODE MA111	
D220	8-719-404-49	DIODE MA111	
		< IC >	
IC201	8-759-510-73	IC BA10393F-E2	
		< TRANSISTOR >	
Q201	8-729-024-24	TRANSISTOR 2SK2154-TL	
Q202	8-729-024-24	TRANSISTOR 2SK2154-TL	
Q203	8-729-429-18	TRANSISTOR UN9213	
Q204	8-729-429-18	TRANSISTOR UN9213	
Q205	8-729-037-71	TRANSISTOR UN9210J-(TX).SO	
Q206	8-729-429-18	TRANSISTOR UN9213	
Q207	8-729-429-18	TRANSISTOR UN9213	
Q208	8-729-429-18	TRANSISTOR UN9213	
Q211	8-729-428-88	TRANSISTOR UN9113	
Q215	8-729-428-88	TRANSISTOR UN9113	
Q216	8-729-428-88	TRANSISTOR UN9113	
Q217	8-729-037-63	TRANSISTOR UN9115J-(TX).SO	
Q218	8-729-037-71	TRANSISTOR UN9210J-(TX).SO	
Q219	8-729-037-71	TRANSISTOR UN9210J-(TX).SO	
		< RESISTOR >	
R201	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R202	1-216-813-11	METAL CHIP 220 5% 1/16W	
R203	1-216-813-11	METAL CHIP 220 5% 1/16W	
R205	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R207	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R208	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R209	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R210	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R211	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R212	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R213	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R214	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R215	1-216-809-11	METAL CHIP 100 5% 1/16W	
R216	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R217	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R218	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R219	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R220	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R221	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R224	1-216-864-11	METAL CHIP 0 5% 1/16W	
R226	1-216-864-11	METAL CHIP 0 5% 1/16W	
R227	1-216-864-11	METAL CHIP 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
*	A-7072-699-A	FK-67 (XCR) BOARD, COMPLETE (TR3300E:AUS, E) ****************************	
*	A-7072-739-A	FK-67 (XP) BOARD, COMPLETE (TR2200E/TR3300E:AEP, UK) ***************************	
*	A-7072-758-A	FK-67 (XCPE) BOARD, COMPLETE (TR2300E) ****************************** (Ref. No. 3,000 Series)	
		< CONNECTOR >	
CN151	1-573-917-11	CONNECTOR, FFC/FPC (ZIF) 8P	
		< DIODE >	
D151	8-719-057-99	DIODE SML-211YT-T86 (STOP)	
D152	8-719-057-99	DIODE SML-211YT-T86 (REW)	
D153	8-719-057-99	DIODE SML-211YT-T86 (PLAY)	
D154	8-719-057-99	DIODE SML-211YT-T86 (FF)	
D155	8-719-057-99	DIODE SML-211YT-T86 (PAUSE)	
D156	8-719-057-99	DIODE SML-211YT-T86 (REC) (TR2300E/TR3300E:AUS, E)	
D157	8-719-057-99	DIODE SML-211YT-T86 (REC) (TR2300E/TR3300E:AUS, E)	
D158	8-719-057-99	DIODE SML-211YT-T86 (CHARGE) (TR2200E/TR3300E)	
		< RESISTOR >	
R151	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R152	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R153	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R154	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R155	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R156	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R157	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R159	1-216-812-11	METAL CHIP 180 5% 1/16W	
R160	1-216-812-11	METAL CHIP 180 5% 1/16W (TR2300E/TR3300E: AUS, E)	
R161	1-216-817-11	METAL CHIP 470 5% 1/16W	
R162	1-216-812-11	METAL CHIP 180 5% 1/16W	
R163	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R164	1-216-833-11	METAL CHIP 10K 5% 1/16W	
		< VARIABLE RESISTOR >	
RV151	1-225-224-11	RES, VAR (ZOOM) 10K	
		< SWITCH >	
S151	1-692-112-11	SWITCH, TACTIL (STOP ■)	
S152	1-692-112-11	SWITCH, TACTIL (REW ◀◀)	

Ref. No.	Part No.	Description	Remark
S153	1-692-112-11	SWITCH, TACTIL (PLAY ▷)	
S154	1-692-112-11	SWITCH, TACTIL (FF ▶▶)	
S155	1-692-112-11	SWITCH, TACTIL (PAUSE ❚❚)	
S156	1-692-112-11	SWITCH, TACTIL (REC ●)	(TR2300E/TR3300E:AUS,E)
S157	1-692-112-11	SWITCH, TACTIL (REC ☐)	(TR2300E/TR3300E:AUS,E)
S158	1-692-112-11	SWITCH, TACTIL (EDIT SEARCH +)	
S159	1-692-112-11	SWITCH, TACTIL (EDIT SEARCH -)	

Ref. No.	Part No.	Description	Remark
		FP-249 BOARD, COMPLETE (not supplied) ************************	(Ref. No. 8,000 Series)
	1-658-214-11	FP-356 FLEXIBLE BOARD	
	3-965-551-01	HOLDER (S), SENSOR	
	3-965-552-01	HOLDER (T), SENSOR	
		< HALL ELEMENT >	
H001	8-719-033-37	ELEMENT, HALL HW-105C	
H002	8-719-033-37	ELEMENT, HALL HW-105C	
		< TRANSISTOR >	
Q001	8-729-907-25	TRANSISTOR PT4850F	
Q002	8-729-907-25	TRANSISTOR PT4850F	
		< SWITCH >	
S001	1-692-614-11	SWITCH, PUSH (3 KEY)	(Hi8 MP, ME/MP, REC PROOF)
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C. LOCK)	

Ref. No.	Part No.	Description	Remark
	1-658-213-11	FP-355 FLEXIBLE BOARD **********************	(Ref. No. 8,000 Series)
		< DIODE >	
D001	8-719-988-42	DIODE GL453S	

Ref. No.	Part No.	Description	Remark
*	A-7092-917-A	HI-40 (XP) BOARD, COMPLETE (TR2200E) ***************************	
*	A-7092-933-A	HI-40 (XCPE) BOARD, COMPLETE *****************************	(TR2300E/TR3300E) (Ref. No. 20,000 Series)
		< BUZZER >	
BZ501	1-529-104-11	BUZZER, PIEZOELECTRIC	

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C501	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1951	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C1952	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1955	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1956	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1957	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1958	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1959	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1961	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1976	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C1977	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1978	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1980	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1981	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1982	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C1984	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1986	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1987	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C1988	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1989	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1990	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2101	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2105	1-162-924-11	CERAMIC CHIP	56PF	5%	50V
C2106	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2107	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C2108	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C2109	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C2110	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2111	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C2112	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2113	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C2114	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2115	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2116	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C2117	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C2118	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN501	1-774-602-41	CONNECTOR, BOARD TO BOARD 60P			
CN502	1-750-344-11	CONNECTOR, FFC/EPC (ZIF) 24P			
CN503	1-766-627-21	CONNECTOR, FFC/FPC 16P			
* CN504	1-770-619-11	PIN, CONNECTOR 2P			
		< DIODE >			
D501	8-719-045-87	DIODE MA4Z082WA-(TXD).SO			
D502	8-719-045-87	DIODE MA4Z082WA-(TXD).SO			
D503	8-719-045-87	DIODE MA4Z082WA-(TXD).SO			

Ref. No.	Part No.	Description	Remark
D504	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D511	8-719-404-49	DIODE MA111	
⚠D512	8-719-420-51	DIODE MA729	
D514	8-719-404-49	DIODE MA111	
D515	8-719-404-49	DIODE MA111	
D516	8-719-404-49	DIODE MA111	
D1951	8-719-404-49	DIODE MA111	
D1952	8-719-404-49	DIODE MA111	
D1953	8-719-404-49	DIODE MA111	
D1954	8-719-420-51	DIODE MA729	
D1955	8-719-420-51	DIODE MA729	
D1956	8-719-421-27	DIODE MA728	
D1957	8-719-404-49	DIODE MA111	

< FERRITE BEAD >

Ref. No.	Part No.	Description	Remark
FB501	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB502	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB503	1-414-228-11	INDUCTOR, FERRITE BEAD	

< IC >

Ref. No.	Part No.	Description	Remark
IC128	8-759-421-52	IC MB87B110CPFV-G-BND-ER	
IC1951	8-759-298-10	IC S-8423NFS-T2	
IC1952	8-759-399-20	IC S579109PZ-TEB	
IC1954	8-759-355-95	IC S-29L253AFS-TB	
IC1955	8-759-059-05	IC TL1596CPW-ELM1000	

< COIL >

Ref. No.	Part No.	Description	Remark
L1951	1-414-078-11	INDUCTOR 10uH	
L2101	1-414-078-11	INDUCTOR 10uH	
L2102	1-412-950-11	INDUCTOR 8.2uH	
L2103	1-414-078-11	INDUCTOR 10uH	
L2104	1-414-078-11	INDUCTOR 10uH	
L2105	1-410-658-31	INDUCTOR CHIP 220uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q501	8-729-425-50	TRANSISTOR 2SB1462Q	
Q502	8-729-428-88	TRANSISTOR UN9113	
Q503	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q504	8-729-429-18	TRANSISTOR UN9213	
Q505	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q506	8-729-429-18	TRANSISTOR UN9213	
Q507	8-729-429-18	TRANSISTOR UN9213	(TR2200E)
Q508	8-729-037-71	TRANSISTOR UN9210J-(TX).SO	
Q509	8-729-429-18	TRANSISTOR UN9213	
Q1951	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1952	8-729-015-66	TRANSISTOR 2SC4919-TL	
Q1953	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1954	8-729-032-00	TRANSISTOR 2SJ381-TD	
Q1955	8-729-429-14	TRANSISTOR UN9211	
Q1959	8-729-032-62	TRANSISTOR 2SJ347-TE85L	
Q1963	8-729-024-48	TRANSISTOR 2SK1830-TE85L	
Q2101	8-729-425-64	TRANSISTOR 2SD2216Q	
Q2102	8-729-425-64	TRANSISTOR 2SD2216Q	
Q2103	8-729-425-64	TRANSISTOR 2SD2216Q	
Q2104	8-729-037-59	TRANSISTOR UN9111J-(TX).SO	
Q2105	8-729-425-64	TRANSISTOR 2SD2216Q	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R510	1-216-864-11	METAL CHIP 0 5% 1/16W	
R511	1-216-864-11	METAL CHIP 0 5% 1/16W	
R512	1-216-864-11	METAL CHIP 0 5% 1/16W	
R513	1-216-864-11	METAL CHIP 0 5% 1/16W	
R514	1-216-864-11	METAL CHIP 0 5% 1/16W	
R515	1-216-864-11	METAL CHIP 0 5% 1/16W	
R516	1-216-864-11	METAL CHIP 0 5% 1/16W	
R518	1-216-817-11	METAL CHIP 470 5% 1/16W	
R519	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R520	1-216-819-11	METAL CHIP 680 5% 1/16W	(TR2200E)
R521	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R522	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R523	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R524	1-216-819-11	METAL CHIP 680 5% 1/16W	
R525	1-216-819-11	METAL CHIP 680 5% 1/16W	
R526	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R527	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R528	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR2300E/TR3300E)
R528	1-216-842-11	METAL CHIP 56K 5% 1/16W	(TR2200E)
R529	1-216-843-11	METAL CHIP 68K 5% 1/16W	(TR2200E)
R529	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR2300E/TR3300E)
R530	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R531	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R539	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R540	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R541	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R542	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R545	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1953	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1954	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1955	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1956	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1957	1-216-813-11	METAL CHIP 220 5% 1/16W	
R1958	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1959	1-216-295-91	CONDUCTOR, CHIP (2012)	
R1960	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1962	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1963	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1964	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1965	1-216-853-11	METAL CHIP 470K 5% 1/16W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

HI-40

Ref. No.	Part No.	Description				Remark
R1966	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1967	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1969	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1970	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1972	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1973	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1974	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1975	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1976	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1977	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1978	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1979	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1980	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1981	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1982	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1983	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1984	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1985	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1986	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1987	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1988	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1991	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1992	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1993	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1994	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1995	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1996	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1997	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1998	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1999	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2000	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2001	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2003	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2004	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2005	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2006	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2007	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2008	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2011	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2012	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2013	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2015	1-219-570-11	METAL GLAZE	10M	5%	1/16W	
R2017	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2018	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2019	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2020	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2021	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R2022	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2023	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2024	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2025	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2026	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2027	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2028	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2029	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2030	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2031	1-216-817-11	METAL CHIP	470	5%	1/16W	
R2032	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2036	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2037	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2038	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2039	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2040	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2041	1-216-864-11	METAL CHIP	0	5%	1/16W	
R2044	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2046	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2047	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R2048	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2049	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R2101	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R2102	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R2103	1-216-819-11	METAL CHIP	680	5%	1/16W	
R2104	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2105	1-216-812-11	METAL CHIP	180	5%	1/16W	
R2108	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R2109	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2110	1-216-816-11	METAL CHIP	390	5%	1/16W	
R2111	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2112	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R2113	1-216-820-11	METAL CHIP	820	5%	1/16W	
R2116	1-216-817-11	METAL CHIP	470	5%	1/16W	
R2117	1-216-816-11	METAL CHIP	390	5%	1/16W	
R2119	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R2120	1-216-819-11	METAL CHIP	680	5%	1/16W	
R2121	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R2122	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R2124	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R2127	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R2128	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2130	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2131	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2132	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2133	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2134	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2151	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2152	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R2155	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2162	1-216-845-11	METAL CHIP	100K	5%	1/16W	

Ref.No.	Part No.	Description	Remark
		< VIBRATOR >	
X1951	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
X1952	1-579-907-21	VIBRATOR, CERAMIC (20MHz)	

Ref.No.	Part No.	Description	Remark
*	A-7072-757-A	LB-45 (XCPE) BOARD, COMPLETE (TR2300E/TR3300E) **************************** (Ref. No. 5,000 Series)	
		< FLUORECENT INDICATOR >	
⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH)	
		< CAPACITOR >	
C801	1-104-917-11	TANTAL. CHIP 15uF 20% 20V	
C802	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C803	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C804	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C805	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C806	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
		< CONNECTOR >	
* CN801	1-573-333-21	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D801	8-719-049-57	DIODE CL-170B-X-T	
		< COIL >	
L801	1-412-030-11	INDUCTOR CHIP 22uH	
L802	1-412-029-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q801	8-729-039-24	TRANSISTOR FX216-TL1	
		< RESISTOR >	
R802	1-216-839-11	METAL CHIP 33K 5% 1/16W	
		< TRANSFORMER >	
⚠T801	1-429-756-21	TRANSFORMER, INVERTER	

Ref.No.	Part No.	Description	Remark
*	A-7072-698-A	LC-53 (XCR) BOARD, COMPLETE *************************** (Ref. No. 7,000 Series)	
		< CAPACITOR >	
C751	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
		< CONNECTOR >	
CN751	1-750-350-21	CONNECTOR, FFC/FPC (ZIF) 10P	
CN752	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN753	1-766-336-21	CONNECTOR, FFC/FPC 6P	
		< DIODE >	
D751	8-719-421-27	DIODE MA728	
		< RESISTOR >	
R752	1-216-811-11	METAL CHIP 150 5% 1/16W	
R753	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R754	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R755	1-216-811-11	METAL CHIP 150 5% 1/16W	

Ref.No.	Part No.	Description	Remark
*	A-7072-690-A	LI-57 (XCR) BOARD, COMPLETE *************************** (Ref. No. 3,000 Series)	
		< BATTERY HOLDER >	
BH101	1-550-104-32	HOLDER, BATTERY	
		< CAPACITOR >	
C101	1-115-156-11	CERAMIC CHIP 1uF 10V	
C102	1-115-156-11	CERAMIC CHIP 1uF 10V	
		< CONNECTOR >	
* CN101	1-770-619-11	PIN, CONNECTOR 2P	

Ref.No.	Part No.	Description	Remark
*	A-7072-694-A	MA-269 (XCR) BOARD, COMPLETE **************************** (Ref. No. 4,000 Series)	
		< CAPACITOR >	
C302	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C303	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C314	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C315	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C323	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C326	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C329	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C330	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C335	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C336	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C337	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C338	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C339	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	
C340	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Ref. No.	Part No.	Description			Remark
C341	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C342	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C343	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C344	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C345	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C346	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C347	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C348	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C349	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C351	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C354	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C355	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C356	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C357	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C358	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C359	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C360	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C361	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C362	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C363	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C364	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C365	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C366	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C367	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C368	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C369	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C370	1-164-346-11	CERAMIC CHIP	1uF		16V
C371	1-164-346-11	CERAMIC CHIP	1uF		16V
C372	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C376	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C377	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C378	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V

< CONNECTOR >

CN301	1-580-055-21	PIN, CONNECTOR 2P
CN302	1-580-055-21	PIN, CONNECTOR 2P
CN303	1-764-522-11	CONNECTOR, FFC/FPC (ZIF) 13P

< DIODE >

D303	8-719-059-73	DIODE	CL-150HR-CD-T (REC/BATTERY)
D304	8-719-404-49	DIODE	MA111
D305	8-719-045-87	DIODE	MA4Z082WA-(TXD).SO

< IC >

IC301	8-759-248-31	IC	BA7780KV-E2
IC303	8-749-012-17	IC	RS-140-T

< JACK >

J301	1-691-737-11	JACK (SMALL TYPE)(MIC (PLUG IN POWER))

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R301	1-216-864-11	METAL CHIP	0	5%	1/16W
R302	1-216-864-11	METAL CHIP	0	5%	1/16W
R303	1-216-864-11	METAL CHIP	0	5%	1/16W
R312	1-216-835-11	METAL CHIP	15K	5%	1/16W
R314	1-216-835-11	METAL CHIP	15K	5%	1/16W
R318	1-216-864-11	METAL CHIP	0	5%	1/16W
R319	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R323	1-216-864-11	METAL CHIP	0	5%	1/16W
R328	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R330	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R331	1-216-821-11	METAL CHIP	1K	5%	1/16W
R332	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R333	1-216-833-11	METAL CHIP	10K	5%	1/16W
R334	1-216-833-11	METAL CHIP	10K	5%	1/16W
R335	1-216-821-11	METAL CHIP	1K	5%	1/16W
R336	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R337	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R338	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R340	1-216-837-11	METAL CHIP	22K	5%	1/16W
R341	1-216-864-11	METAL CHIP	0	5%	1/16W
R342	1-216-836-11	METAL CHIP	18K	5%	1/16W
R343	1-216-839-11	METAL CHIP	33K	5%	1/16W
R344	1-216-839-11	METAL CHIP	33K	5%	1/16W
R345	1-216-833-11	METAL CHIP	10K	5%	1/16W
R346	1-216-833-11	METAL CHIP	10K	5%	1/16W
R347	1-216-864-11	METAL CHIP	0	5%	1/16W
R348	1-216-836-11	METAL CHIP	18K	5%	1/16W
R349	1-216-837-11	METAL CHIP	22K	5%	1/16W
R350	1-216-835-11	METAL CHIP	15K	5%	1/16W
R351	1-216-835-11	METAL CHIP	15K	5%	1/16W
R354	1-216-835-11	METAL CHIP	15K	5%	1/16W
R355	1-216-835-11	METAL CHIP	15K	5%	1/16W
R356	1-216-839-11	METAL CHIP	33K	5%	1/16W
R357	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R358	1-216-839-11	METAL CHIP	33K	5%	1/16W
R362	1-216-834-11	METAL CHIP	12K	5%	1/16W
R363	1-216-839-11	METAL CHIP	33K	5%	1/16W
R364	1-216-818-11	METAL CHIP	560	5%	1/16W
R365	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R370	1-216-805-11	METAL CHIP	47	5%	1/16W
R371	1-216-836-11	METAL CHIP	18K	5%	1/16W
R373	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description	Remark
*	A-7072-700-A	MM-32 (XCR) BOARD, COMPLETE (TR3300E)	
		***************************	
			(Ref. No. 9,000 Series)
		< CAPACITOR >	
C701	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C702	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C703	1-115-156-11	CERAMIC CHIP 1uF 10V	
		< CONNECTOR >	
* CN701	1-766-883-31	CONNECTOR, BOARD TO BOARD 50P	
		< FERRITE BEAD >	
FB701	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB702	1-414-228-11	INDUCTOR, FERRITE BEAD	
		< IC >	
IC701	8-759-380-21	IC F432153PZ-TEB	
IC702	8-759-428-88	IC ZA4038-E05	
IC703	8-752-379-65	IC CXD2178AR-T6	
		< RESISTOR >	
R703	1-216-864-11	METAL CHIP 0 5% 1/16W	
*	A-7072-847-A	VC-177 (XCRPE) BOARD, COMPLETE	(TR3300E:AUS, E)
		******************************	
*	A-7072-848-A	VC-177 (XCRP) BOARD, COMPLETE	(TR3300E:AEP, UK)
		*****************************	
*	A-7092-915-A	VC-177 (XP) BOARD, COMPLETE (TR2200E)	
		***************************	
*	A-7092-932-A	VC-177 (XCPE) BOARD, COMPLETE (TR2300E)	
		*****************************	
			(Ref. No. 10,000 Series)
		< CAPACITOR >	
C251	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C252	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C253	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C254	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C255	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C256	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C258	1-104-752-11	TANTAL. CHIP 33uF 20% 6.3V	
C259	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C260	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C261	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C262	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C263	1-115-156-11	CERAMIC CHIP 1uF 10V	
C266	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C267	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C268	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C269	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C271	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C276	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C572	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	(TR2200E/TR3300E)
C573	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	(TR2200E/TR3300E)
C574	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C576	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C577	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C578	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	
C579	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	
C580	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C581	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C586	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C587	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR2200E/TR3300E:AEP, UK)
C600	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR3300E:AUS, E)
C601	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR3300E:AUS, E)
C602	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V	(TR3300E:AUS, E)
C603	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V	(TR3300E:AUS, E)
C604	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V	(TR3300E:AUS, E)
C605	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V	(TR3300E:AUS, E)
C609	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C610	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1002	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C1003	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C1004	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C1005	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C1006	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1007	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1008	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1009	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1010	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1011	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1012	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1013	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1014	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

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Ref. No.	Part No.	Description			Remark
C1018	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1019	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1020	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1021	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C1022	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1023	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1024	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1025	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C1026	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1027	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1029	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1030	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1034	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C1035	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1036	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1038	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1039	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1040	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C1042	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C1044	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C1045	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C1046	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1047	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C1048	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C1049	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1050	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C1051	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1052	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1053	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1054	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C1055	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1056	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C1057	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C1058	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1061	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C1062	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1063	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C1064	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1066	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C1067	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C1068	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C1069	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1070	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1071	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C1072	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C1075	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1076	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1151	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1152	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C1153	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C1154	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C1156	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1157	1-115-156-11	CERAMIC CHIP	1uF		10V
C1160	1-115-156-11	CERAMIC CHIP	1uF		10V
C1161	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1163	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1164	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1165	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1166	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1167	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1168	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1201	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C1203	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C1204	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C1205	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1206	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C1207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1208	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1209	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1210	1-115-156-11	CERAMIC CHIP	1uF		10V
C1212	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1213	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C1215	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C1216	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1217	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1218	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1219	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C1220	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C1222	1-115-156-11	CERAMIC CHIP	1uF		10V
C1223	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1224	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C1227	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1228	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1229	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1230	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1231	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C1232	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C1233	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1234	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1236	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1237	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C1240	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1280	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1282	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR2300E/TR3300E:AUS,E)
C1283	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C1284	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1285	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1301	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1302	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V

Ref.No.	Part No.	Description				Remark
C1306	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR2300E/TR3300E:AUS,E)
C1307	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1308	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C1309	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	(TR2300E/TR3300E:AUS,E)
C1310	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	
C1311	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1312	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR2300E/TR3300E:AUS,E)
C1313	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1314	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C1315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1317	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1318	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1319	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1320	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1321	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR2300E/TR3300E:AUS,E)
C1322	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V	(TR2300E/TR3300E:AUS,E)
C1323	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	(TR2300E/TR3300E:AUS,E)
C1324	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	(TR2300E/TR3300E:AUS,E)
C1326	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	(TR2300E/TR3300E:AUS,E)
C1327	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1328	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	(TR2300E/TR3300E:AUS,E)
C1330	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1331	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1332	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C1333	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C1334	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1335	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1337	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1338	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1339	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1340	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1342	1-162-928-11	CERAMIC CHIP	120PF	5%	50V	(TR2300E/TR3300E:AUS,E)
C1343	1-162-920-11	CERAMIC CHIP	27PF	5%	50V	(TR2300E/TR3300E:AUS,E)
C1345	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	(TR2300E/TR3300E:AUS,E)
C1346	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C1347	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C1402	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1403	1-104-908-11	TANTAL. CHIP	47uF	20%	4V	
C1404	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	

Ref.No.	Part No.	Description				Remark
C1405	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1406	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1407	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1408	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1409	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C1410	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1412	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1414	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1415	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1416	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C1417	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1421	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C1422	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1423	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1424	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1425	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1426	1-104-908-11	TANTAL. CHIP	47uF	20%	4V	
C1427	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C1429	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1430	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1431	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V	
C1432	1-104-908-11	TANTAL. CHIP	47uF	20%	4V	
C1433	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1434	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1435	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V	
C1436	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V	
C1437	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C1439	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	
C1441	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1444	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1471	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C1474	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1475	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C1601	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C1602	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1604	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V	
C1605	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1608	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1612	1-162-923-11	CERAMIC CHIP	47PF	5%	50V	
C1613	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1615	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1616	1-162-916-11	CERAMIC CHIP	12PF	5%	50V	
C1617	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V	
C1618	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V	
C1619	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V	
C1620	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1621	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1622	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1623	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	

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Ref. No.	Part No.	Description			Remark
C1624	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1625	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1626	1-164-346-11	CERAMIC CHIP	1uF		16V
C1628	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1629	1-115-156-11	CERAMIC CHIP	1uF		10V
C1630	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C1631	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C1632	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1635	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1654	1-115-156-11	CERAMIC CHIP	1uF		10V
C1655	1-115-156-11	CERAMIC CHIP	1uF		10V
C1656	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1657	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C1658	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1659	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1665	1-115-156-11	CERAMIC CHIP	1uF		10V
C1702	1-115-156-11	CERAMIC CHIP	1uF		10V
C1703	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR2200E/TR2300E)
C1751	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1752	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1753	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1754	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1755	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1756	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1757	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C1758	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C1760	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1761	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1762	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1763	1-162-911-11	CERAMIC CHIP	6PF	0.5PF	50V
C1764	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1765	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1767	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C1768	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1769	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1770	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1771	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C1772	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C1773	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1774	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1775	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1776	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1777	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1779	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1780	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1781	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C1782	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C1851	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1852	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1853	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1854	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1855	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1856	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1857	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1858	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1859	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1860	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1861	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1862	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1863	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1864	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C1865	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1866	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1867	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1868	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1869	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1870	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1871	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1872	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1873	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C1874	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1875	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1876	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1877	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1878	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1879	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1880	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1882	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1884	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1886	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1887	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C1888	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2051	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V (TR2300E/TR3300E)
C2052	1-164-156-11	CERAMIC CHIP	0.1uF		25V (TR2300E/TR3300E)
C2054	1-164-156-11	CERAMIC CHIP	0.1uF		25V (TR2300E/TR3300E)
C2055	1-164-156-11	CERAMIC CHIP	0.1uF		25V (TR2300E/TR3300E)
C2056	1-164-156-11	CERAMIC CHIP	0.1uF		25V (TR2300E/TR3300E)
C2057	1-164-156-11	CERAMIC CHIP	0.1uF		25V (TR2300E/TR3300E)

< CONNECTOR >

Ref. No.	Part No.	Description
CN101	1-766-341-21	CONNECTOR, FFC/FPC 11P
CN102	1-766-345-21	CONNECTOR, FFC/FPC 15P
CN103	1-766-342-21	CONNECTOR, FFC/FPC 12P
CN104	1-766-340-21	CONNECTOR, FFC/FPC 10P
CN105	1-766-644-21	CONNECTOR, FFC/FPC 8P

Ref.No.	Part No.	Description	Remark
CN106	1-691-542-21	CONNECTOR, BOARD TO BOARD 48P	
CN107	1-766-344-21	CONNECTOR, FFC/FPC 14P	
CN108	1-766-353-21	CONNECTOR, FFC/FPC 23P	
CN109	1-691-352-21	CONNECTOR, FFC/FPC (ZIF) 14P	
CN110	1-774-596-41	CONNECTOR, BOARD TO BOARD 60P	
CN111	1-766-350-21	CONNECTOR, FFC/FPC 20P	
CN112	1-750-630-11	CONNECTOR, FFC/FPC (ZIF) 16P	
CN113	1-573-363-21	CONNECTOR, FFC/FPC 23P	
CN202	1-766-343-21	CONNECTOR, FFC/FPC 13P	
CN203	1-774-641-21	CONNECTOR, FFC/FPC 18P(TR2200E/TR3300E)	
CN204	1-766-884-41	CONNECTOR, BOARD TO BOARD 50P (TR3300E)	
CN205	1-766-340-21	CONNECTOR, FFC/FPC 10P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D384	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D385	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D394	8-719-045-87	DIODE MA4Z082WA-(TXD).SO	
D651	8-719-404-49	DIODE MA111 (TR2200E)	
D652	8-719-404-49	DIODE MA111 (TR2200E)	
D653	8-719-404-49	DIODE MA111 (TR2200E)	
D1201	8-719-055-86	DIODE KV1470TL1-3	
D1202	8-719-055-86	DIODE KV1470TL1-3	
D1601	8-719-404-49	DIODE MA111	
D1602	8-713-102-28	DIODE 1T379-04-T8A	
D1758	8-719-420-51	DIODE MA729	

< FERRITE BEAD >

Ref.No.	Part No.	Description	Remark
FB1151	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1601	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB1602	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB1603	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1604	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1605	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1701	1-414-228-11	INDUCTOR, FERRITE BEAD	

< IC >

Ref.No.	Part No.	Description	Remark
IC101	8-752-075-31	IC CXA2012R-T4	
IC102	8-759-357-62	IC MB87B108DPFV-G-BND-ER	
IC103	8-752-356-45	IC CXD2301Q-T4	
IC104	8-759-357-65	IC uPD6466GS-604-GLG-E2	
IC105	8-759-357-64	IC CF45819BPZ-TEB	
IC106	8-759-387-35	IC HG51CS276TETL	
IC108	8-759-290-12	IC M62370GP-650D	
IC109	8-759-368-08	IC AN2980FH-EB	
IC114	8-752-380-17	IC CXD2177BR-T6	
IC115	8-752-379-65	IC CXD2178AR-T6 (TR2200E/TR2300E)	
IC116	8-759-365-53	IC S-29L353AFS-TB	
IC117	8-752-872-77	IC CXP912032-010R-T6	
IC118	8-759-058-62	IC TC7S08FU(TE85R)	
IC119	8-759-058-62	IC TC7S08FU(TE85R)	
IC120	8-759-356-30	IC XR1083ACQ-E2	
IC121	8-759-327-67	IC LB1950V-TLM	
IC122	8-759-327-62	IC TA8482FN-EL	
IC129	8-759-357-63	IC AN2220FH-EB	
IC130	8-759-058-58	IC TC7S04FU(TE85R)	(TR2300E/TR3300E:AUS,E)
IC151	8-752-376-32	IC CXD2310AR-T4	
IC152	8-752-377-12	IC CXD2175R-T6	
IC202	8-752-377-92	IC CXD2485R-T4	
IC203	8-752-073-11	IC CXA2006Q-T4	
IC251	8-759-337-40	IC NJM2904V(TE2)	
IC252	8-759-351-46	IC MPC17A34RVMEL	
IC253	8-759-337-41	IC NJM2902V(TE2)	
IC255	8-752-377-38	IC CXD2430N-T4	
IC571	8-759-075-68	IC TC4066BFS-EL (TR3300E:AUS,E)	
IC600	8-759-284-49	IC NJM2285V-TE2 (TR3300E:AUS,E)	
IC800	8-752-378-02	IC CXD2049R-T4 (TR2300E/TR3300E)	

< COIL >

Ref.No.	Part No.	Description	Remark
L251	1-414-078-11	INDUCTOR 10uH	
L252	1-414-078-11	INDUCTOR 10uH	
L253	1-412-058-11	INDUCTOR CHIP 10uH	
L1001	1-412-952-11	INDUCTOR 12uH	
L1002	1-412-066-21	INDUCTOR CHIP 220uH	
L1003	1-412-066-21	INDUCTOR CHIP 220uH	
L1004	1-412-066-21	INDUCTOR CHIP 220uH	
L1005	1-414-080-11	INDUCTOR 22uH	
L1006	1-412-957-11	INDUCTOR 33uH	
L1007	1-412-280-31	INDUCTOR 330uH	
L1008	1-412-282-41	INDUCTOR 470uH	
L1009	1-410-657-21	INDUCTOR CHIP 180uH	
L1010	1-412-956-21	INDUCTOR 27uH	
L1011	1-412-949-21	INDUCTOR 6.8uH	
L1012	1-412-951-11	INDUCTOR 10uH	
L1013	1-414-078-11	INDUCTOR 10uH	
L1014	1-410-656-11	INDUCTOR CHIP 150uH	
L1015	1-412-963-11	INDUCTOR 100uH	
L1018	1-410-656-11	INDUCTOR CHIP 150uH	
L1019	1-412-280-31	INDUCTOR 330uH	
L1021	1-412-944-11	INDUCTOR 2.7uH	
L1022	1-412-279-31	INDUCTOR 270uH	
L1151	1-414-078-11	INDUCTOR 10uH	
L1154	1-414-078-11	INDUCTOR 10uH	
L1201	1-414-078-11	INDUCTOR 10uH	
L1202	1-414-078-11	INDUCTOR 10uH	
L1203	1-414-078-11	INDUCTOR 10uH	
L1204	1-412-945-11	INDUCTOR 3.3uH	
L1206	1-414-078-11	INDUCTOR 10uH	
L1207	1-414-078-11	INDUCTOR 10uH	
L1209	1-414-078-11	INDUCTOR 10uH	

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Ref. No.	Part No.	Description	Remark
L1220	1-412-955-11	INDUCTOR 22uH	
L1301	1-414-078-11	INDUCTOR 10uH	
L1303	1-412-937-11	INDUCTOR 0.68uH	(TR2300E/TR3300E:AUS, E)
L1305	1-414-078-11	INDUCTOR 10uH	
L1306	1-414-078-11	INDUCTOR 10uH	
L1307	1-414-078-11	INDUCTOR 10uH	
L1308	1-412-959-11	INDUCTOR 47uH	(TR2300E/TR3300E:AUS, E)
L1309	1-412-955-11	INDUCTOR 22uH	
L1402	1-414-078-11	INDUCTOR 10uH	
L1403	1-414-233-21	INDUCTOR, FERRITE BEAD	
L1603	1-412-058-11	INDUCTOR CHIP 10uH	
L1652	1-414-078-11	INDUCTOR 10uH	
L1654	1-414-078-11	INDUCTOR 10uH	
L1751	1-414-078-11	INDUCTOR 10uH	
L1752	1-414-078-11	INDUCTOR 10uH	
L1753	1-414-078-11	INDUCTOR 10uH	
L1754	1-412-961-11	INDUCTOR 68uH	
L2051	1-414-078-11	INDUCTOR 10uH	(TR2300E/TR3300E)
		< TRANSISTOR >	
Q251	8-729-425-64	TRANSISTOR 2SD2216Q	
Q252	8-729-425-64	TRANSISTOR 2SD2216Q	
Q253	8-729-425-50	TRANSISTOR 2SB1462Q	
Q254	8-729-429-18	TRANSISTOR UN9213	
Q572	8-729-037-63	TRANSISTOR UN9115J-(TX).SO	
Q573	8-729-429-18	TRANSISTOR UN9213	(TR2200E/TR3300E)
Q574	8-729-037-76	TRANSISTOR UN9215J-(TX).SO	(TR2200E/TR3300E)
Q575	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	(TR2200E/TR3300E)
Q576	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	(TR3300E:AUS, E)
Q577	8-729-429-18	TRANSISTOR UN9213	(TR3300E:AUS, E)
Q578	8-729-037-76	TRANSISTOR UN9215J-(TX).SO	
Q579	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	
Q580	8-729-429-18	TRANSISTOR UN9213	
Q581	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	(TR2200E/TR3300E)
Q582	8-729-037-76	TRANSISTOR UN9215J-(TX).SO	(TR2200E/TR3300E)
Q583	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	(TR2200E/TR3300E)
Q584	8-729-429-18	TRANSISTOR UN9213	(TR3300E:AUS, E)
Q585	8-729-037-76	TRANSISTOR UN9215J-(TX).SO	
Q586	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q587	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	
Q588	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	
Q589	8-729-037-77	TRANSISTOR UN9216J-(TX).SO	
Q590	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q591	8-729-015-66	TRANSISTOR 2SC4919-TL	
Q592	8-729-015-66	TRANSISTOR 2SC4919-TL	
Q593	8-729-015-66	TRANSISTOR 2SC4919-TL	
Q1001	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q1002	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1003	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1004	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1005	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1006	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1007	8-729-429-18	TRANSISTOR UN9213	
Q1009	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1010	8-729-429-18	TRANSISTOR UN9213	
Q1013	8-729-429-18	TRANSISTOR UN9213	
Q1014	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1015	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1016	8-729-037-89	TRANSISTOR 2SC4627J-C(TX).SO	
Q1018	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1019	8-729-037-89	TRANSISTOR 2SC4627J-C(TX).SO	
Q1021	8-729-429-18	TRANSISTOR UN9213	
Q1022	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1023	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q1024	8-729-429-18	TRANSISTOR UN9213	
Q1027	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1030	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1031	8-729-037-89	TRANSISTOR 2SC4627J-C(TX).SO	
Q1033	8-729-429-18	TRANSISTOR UN9213	
Q1034	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1035	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q1036	8-729-429-18	TRANSISTOR UN9213	
Q1037	8-729-429-18	TRANSISTOR UN9213	
Q1151	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1201	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1202	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1203	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1220	8-729-429-18	TRANSISTOR UN9213	
Q1221	8-729-429-18	TRANSISTOR UN9213	(TR2300E/TR3300E:AUS, E)
Q1222	8-729-037-63	TRANSISTOR UN9115J-(TX).SO	
Q1305	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1306	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1601	8-729-429-18	TRANSISTOR UN9213	
Q1602	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q1603	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	
Q1604	8-729-429-18	TRANSISTOR UN9213	
Q1751	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1752	8-729-037-61	TRANSISTOR UN9113J-(TX).SO	(TR3300E)
Q1851	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1852	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1853	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q1854	8-729-425-64	TRANSISTOR 2SD2216Q	
Q2051	8-729-425-50	TRANSISTOR 2SB1462Q	(TR2300E/TR3300E)
Q2052	8-729-425-50	TRANSISTOR 2SB1462Q	(TR2300E/TR3300E)
Q2053	8-729-425-50	TRANSISTOR 2SB1462Q	(TR2300E/TR3300E)

Ref. No.	Part No.	Description	Remark
		< RESISTOR >	
R251	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R252	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R253	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R254	1-216-001-00	METAL CHIP 10 5% 1/10W	
R255	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R256	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R257	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R258	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R259	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R260	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R261	1-216-815-11	METAL CHIP 330 5% 1/16W	
R262	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R263	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R264	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R265	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R266	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R267	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R268	1-218-893-11	METAL CHIP 82K 0.50% 1/16W	
R269	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R270	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R271	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R272	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R273	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R274	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R275	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R276	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R293	1-216-864-11	METAL CHIP 0 5% 1/16W	
R294	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R295	1-216-864-11	METAL CHIP 0 5% 1/16W	
R296	1-216-864-11	METAL CHIP 0 5% 1/16W	
R297	1-216-864-11	METAL CHIP 0 5% 1/16W	
R299	1-216-864-11	METAL CHIP 0 5% 1/16W	
R301	1-216-864-11	METAL CHIP 0 5% 1/16W	
R572	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR2200E/TR3300E)
R573	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR2200E/TR3300E)
R574	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR2200E/TR3300E)
R575	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR2200E/TR3300E)
R576	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR2200E/TR3300E)
R577	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TR3300E:AUS, E)
R578	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR3300E:AUS, E)
R579	1-216-817-11	METAL CHIP 470 5% 1/16W	
R580	1-216-817-11	METAL CHIP 470 5% 1/16W	
R581	1-216-817-11	METAL CHIP 470 5% 1/16W	
R582	1-216-817-11	METAL CHIP 470 5% 1/16W	
R583	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R584	1-216-810-11	METAL CHIP 120 5% 1/16W	
R585	1-216-810-11	METAL CHIP 120 5% 1/16W	
R600	1-216-804-11	METAL CHIP 39 5% 1/16W	
R601	1-216-804-11	METAL CHIP 39 5% 1/16W	
R602	1-216-804-11	METAL CHIP 39 5% 1/16W	
R603	1-216-803-11	METAL CHIP 33 5% 1/16W	
R604	1-216-803-11	METAL CHIP 33 5% 1/16W	
R605	1-216-803-11	METAL CHIP 33 5% 1/16W	
R606	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR2200E/TR3300E)
R607	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	(TR2200E/TR3300E)
R608	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR2200E/TR3300E)
R609	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR2300E/TR3300E:AUS, E)
R609	1-412-963-11	INDUCTOR 100UH	(TR2200E/TR3300E:AEP, UK)
R610	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR2300E/TR3300E:AUS, E)
R610	1-412-963-11	INDUCTOR 100UH	(TR2200E/TR3300E:AEP, UK)
R611	1-216-864-11	METAL CHIP 0 5% 1/16W	
R613	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E)
R614	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E)
R615	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2200E/TR2300E/TR3300E:AEP, UK)
R616	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2200E/TR2300E/TR3300E:AEP, UK)
R617	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2200E/TR2300E/TR3300E:AEP, UK)
R619	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R620	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R621	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R622	1-216-864-11	METAL CHIP 0 5% 1/16W	
R651	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	(TR2200E)
R653	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2200E)
R654	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2200E)
R655	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E/TR3300E)
R656	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E/TR3300E)
R668	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2200E)
R669	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2200E)
R702	1-216-864-11	METAL CHIP 0 5% 1/16W	
R703	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R705	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR3300E:AEP, UK)
R705	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TR2300E)
R705	1-216-842-11	METAL CHIP 56K 5% 1/16W	(TR2200E)
R705	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR3300E:AUS, E)

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Ref.No.	Part No.	Description	Remark
R706	1-216-843-11	METAL CHIP 68K 5% 1/16W	(TR2200E)
R706	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR2300E/TR3300E:AEP,UK)
R1001	1-216-806-11	METAL GLAZE 56 5% 1/16W	
R1002	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1003	1-216-818-11	METAL CHIP 560 5% 1/16W	
R1004	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1005	1-216-814-11	METAL CHIP 270 5% 1/16W	
R1006	1-216-813-11	METAL CHIP 220 5% 1/16W	
R1007	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1008	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1009	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1010	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1011	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1012	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1013	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1014	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1016	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1017	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1018	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1020	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R1021	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1022	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1023	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1024	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1025	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1026	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1027	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1029	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1030	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1031	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1032	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1033	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1034	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R1035	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1038	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1041	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1044	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1049	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1053	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1054	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1055	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1056	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R1057	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1058	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1060	1-216-820-11	METAL CHIP 820 5% 1/16W	
R1061	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1062	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1063	1-216-820-11	METAL CHIP 820 5% 1/16W	
R1065	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1066	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1067	1-216-815-11	METAL CHIP 330 5% 1/16W	
R1068	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1069	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1070	1-216-815-11	METAL CHIP 330 5% 1/16W	
R1072	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R1073	1-216-813-11	METAL CHIP 220 5% 1/16W	
R1074	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1075	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1076	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1079	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1080	1-216-818-11	METAL CHIP 560 5% 1/16W	
R1081	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1085	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1086	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1088	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1090	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1091	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1093	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R1094	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1095	1-216-815-11	METAL CHIP 330 5% 1/16W	
R1096	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1097	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1098	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1099	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1100	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1104	1-216-295-91	CONDUCTOR, CHIP (2012)	
R1105	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1106	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1108	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1109	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R1110	1-216-805-11	METAL CHIP 47 5% 1/16W	
R1111	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1112	1-216-818-11	METAL CHIP 560 5% 1/16W	
R1113	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R1114	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1151	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1152	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R1153	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1154	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1155	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R1156	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R1157	1-216-808-11	METAL CHIP 82 5% 1/16W	
R1159	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1160	1-216-819-11	METAL CHIP 680 5% 1/16W	
R1162	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1163	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R1165	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1213	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R1215	1-216-809-11	METAL CHIP 100 5% 1/16W	

Ref.No.	Part No.	Description				Remark
R1216	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R1217	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1218	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1219	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R1221	1-216-820-11	METAL CHIP	820	5%	1/16W	
R1222	1-216-820-11	METAL CHIP	820	5%	1/16W	
R1223	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1224	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R1225	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1226	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1227	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1228	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R1230	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1231	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1232	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1233	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R1234	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R1235	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1236	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1237	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1238	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1239	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1240	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1241	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1242	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1246	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1247	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1248	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1249	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1250	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1251	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1252	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1253	1-216-819-11	METAL CHIP	680	5%	1/16W	
R1254	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1255	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1256	1-216-816-11	METAL CHIP	390	5%	1/16W	
R1280	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1281	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R1283	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TR2300E/TR3300E:AUS, E)
R1283	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR2200E/TR3300E:AEP, UK)
R1284	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TR2300E/TR3300E:AUS, E)
R1285	1-216-857-11	METAL CHIP	1M	5%	1/16W	(TR2300E/TR3300E:AUS, E)
R1285	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR2200E/TR3300E:AEP, UK)
R1286	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1290	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1292	1-216-845-11	METAL CHIP	100K	5%	1/16W	

Ref.No.	Part No.	Description				Remark
R1293	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1307	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R1308	1-216-837-11	METAL CHIP	22K	5%	1/16W	(TR2300E/TR3300E:AUS, E)
R1312	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1313	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1314	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1315	1-216-815-11	METAL CHIP	330	5%	1/16W	
R1316	1-216-815-11	METAL CHIP	330	5%	1/16W	
R1318	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1319	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R1321	1-218-876-11	METAL CHIP	16K	0.50%	1/16W	
R1322	1-218-847-11	METAL CHIP	1K	0.50%	1/16W	
R1323	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	(TR2300E/TR3300E:AUS, E)
R1324	1-216-834-11	METAL CHIP	12K	5%	1/16W	(TR2300E/TR3300E:AUS, E)
R1330	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R1331	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R1332	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR2300E/TR3300E:AUS, E)
R1333	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1334	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1402	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R1403	1-218-903-11	METAL CHIP	220K	0.50%	1/16W	
R1404	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1406	1-218-901-11	METAL CHIP	180K	0.50%	1/16W	
R1407	1-218-873-11	METAL CHIP	12K	0.50%	1/16W	
R1408	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1409	1-216-820-11	METAL CHIP	820	5%	1/16W	
R1410	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1415	1-162-925-11	CERAMIC CHIP	68PF	5%	50V	
R1418	1-218-903-11	METAL CHIP	220K	0.50%	1/16W	
R1419	1-216-813-11	METAL CHIP	220	5%	1/16W	
R1421	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R1422	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1423	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1424	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1425	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1426	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R1429	1-218-909-11	METAL CHIP	390K	0.50%	1/16W	
R1430	1-218-909-11	METAL CHIP	390K	0.50%	1/16W	
R1431	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R1460	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1463	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1472	1-218-855-11	METAL CHIP	2.2K	0.50%	1/16W	
R1476	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1601	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1603	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1616	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1620	1-216-833-11	METAL CHIP	10K	5%	1/16W	

Ref. No.	Part No.	Description	Remark
R1621	1-216-803-11	METAL CHIP 33 5% 1/16W	
R1622	1-216-803-11	METAL CHIP 33 5% 1/16W	
R1626	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1628	1-216-806-11	METAL GLAZE 56 5% 1/16W	(TR3300E)
R1628	1-216-809-11	METAL CHIP 100 5% 1/16W	(TR2200E/TR2300E)
R1629	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1630	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1632	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1633	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1651	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1653	1-216-803-11	METAL CHIP 33 5% 1/16W	
R1751	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R1752	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1753	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1759	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1760	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1761	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1762	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1763	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1772	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1773	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1775	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1780	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1781	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1782	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1783	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1784	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1785	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1786	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1787	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1789	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1790	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1791	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1792	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1793	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1794	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1795	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1796	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1798	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1801	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1803	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R1804	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1805	1-216-856-11	METAL CHIP 820K 5% 1/16W	
R1806	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1807	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1808	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1809	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1810	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1811	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1812	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1813	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1814	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1817	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1818	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1820	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1821	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1822	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1823	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1826	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1827	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1836	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1851	1-217-671-11	METAL CHIP 1 5% 1/10W	
R1852	1-217-671-11	METAL CHIP 1 5% 1/10W	
R1853	1-217-671-11	METAL CHIP 1 5% 1/10W	
R1855	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1856	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1857	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1859	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1860	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1861	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1862	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1863	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1865	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R1867	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1868	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1869	1-216-019-00	METAL CHIP 56 5% 1/10W	
R1872	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1873	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1874	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1875	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1876	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1877	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1878	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1880	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1881	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1882	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1883	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1884	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1887	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R1888	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R1889	1-217-671-11	METAL CHIP 1 5% 1/10W	
R1890	1-217-671-11	METAL CHIP 1 5% 1/10W	
R1891	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R1892	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1893	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1894	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1895	1-216-800-11	METAL GLAZE 18 5% 1/16W	
R1896	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1897	1-216-808-11	METAL CHIP 82 5% 1/16W	
R2051	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TR2300E/TR3300E)

Ref. No.	Part No.	Description	Remark
R2052	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR2300E/TR3300E)
R2053	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E/TR3300E)
R2054	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E/TR3300E)
R2055	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR2300E/TR3300E)
R2056	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TR2300E/TR3300E)
R2058	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TR2300E/TR3300E)
R2059	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR2300E/TR3300E)
R2060	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR2300E/TR3300E)
R2061	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR2300E/TR3300E)
R2062	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR2300E/TR3300E)
R2063	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR2300E/TR3300E)
R2064	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR2300E/TR3300E)
R2065	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR2300E/TR3300E)
R2070	1-217-671-11	METAL CHIP 1 5% 1/10W	(TR2300E/TR3300E)
R2071	1-217-671-11	METAL CHIP 1 5% 1/10W	(TR2300E/TR3300E)
R2072	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	(TR2300E/TR3300E)
R2073	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	(TR2300E/TR3300E)

< THERMISTOR >

Ref. No.	Part No.	Description	Remark
TH1751	1-809-360-21	THERMISTOR, NTC (33K)	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X1305	1-767-029-21	VIBRATOR, CRYSTAL (17MHz)	(TR2300E/TR3300E:AUS,E)
X1601	1-760-321-11	VIBRATOR, CRYSTAL (28.375MHz)	
X1751	1-760-655-41	VIBRATOR, CRYSTAL (20MHz)	
X1752	1-767-031-21	VIBRATOR, CRYSTAL (11.79MHz)	

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* A-7072-755-A VF-95 (XCPE) BOARD, COMPLETE (TR2300E/TR3300E)

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(Ref. No. 5,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C851	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C852	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C853	1-104-916-11	TANTAL. CHIP	6.8uF	20%	20V
C854	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C855	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C856	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C857	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C858	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C859	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C860	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C865	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C867	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C868	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C869	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C870	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C871	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C872	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C873	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C874	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C877	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C878	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C880	1-165-128-11	CERAMIC CHIP	0.22uF		16V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN851	1-766-350-21	CONNECTOR, FFC/FPC 20P	
CN852	1-766-637-21	CONNECTOR, FFC/FPC 26P	
CN853	1-573-305-11	CONNECTOR, BOARD TO BOARD 10P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D851	8-719-951-21	DIODE PR1102W-TR	
D852	8-719-043-70	DIODE MA6S121-(TX)	
D853	8-719-802-36	DIODE 1SS250	

< IC >

Ref. No.	Part No.	Description	Remark
IC851	8-759-097-75	IC MB3789PFV-G-BND-ER	
IC852	8-759-337-40	IC NJM2904V(TE2)	
IC853	8-759-080-34	IC TA75W01FU-TE12	
IC854	8-759-082-60	IC TC7S66FU(TE85R)	
IC855	8-759-338-78	IC BA10324AFV-E2	
IC857	8-759-079-66	IC TC74VHC123AFS(EL)	

< COIL >

Ref. No.	Part No.	Description	Remark
L853	1-412-033-11	INDUCTOR CHIP 220uH	
L854	1-412-951-11	INDUCTOR 10uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q851	8-729-822-05	TRANSISTOR 2SD1622-ST-TD	
Q852	8-729-425-64	TRANSISTOR 2SD2216Q	
Q853	8-729-028-81	TRANSISTOR DTA123JUA-T106	
Q854	8-729-425-50	TRANSISTOR 2SB1462Q	
Q855	8-729-425-50	TRANSISTOR 2SB1462Q	

Ref. No.	Part No.	Description				Remark
Q860	8-729-425-64	TRANSISTOR	2SD2216Q			
Q861	8-729-425-64	TRANSISTOR	2SD2216Q			
Q864	8-729-429-18	TRANSISTOR	UN9213			
Q865	8-729-429-18	TRANSISTOR	UN9213			
Q866	8-729-429-18	TRANSISTOR	UN9213			
Q870	8-729-425-64	TRANSISTOR	2SD2216Q			

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R832	1-216-797-11	METAL CHIP	10	5%	1/16W	
R836	1-216-809-11	METAL CHIP	100	5%	1/16W	
R840	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R841	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R842	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R843	1-216-817-11	METAL CHIP	470	5%	1/16W	
R844	1-216-150-91	METAL GLAZE	10	5%	1/8W	
R846	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R847	1-216-817-11	METAL CHIP	470	5%	1/16W	
R849	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R850	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R851	1-216-819-11	METAL CHIP	680	5%	1/16W	
R852	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R853	1-218-899-11	METAL CHIP	150K	0.50%	1/16W	
R854	1-218-901-11	METAL CHIP	180K	0.50%	1/16W	
R855	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R856	1-218-899-11	METAL CHIP	150K	0.50%	1/16W	
R857	1-218-903-11	METAL CHIP	220K	0.50%	1/16W	
R858	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R859	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R860	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R861	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R862	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R863	1-216-854-11	METAL CHIP	560K	5%	1/16W	
R864	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R865	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R867	1-216-850-11	METAL CHIP	270K	5%	1/16W	
R868	1-216-864-11	METAL CHIP	0	5%	1/16W	
R869	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R870	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R871	1-216-850-11	METAL CHIP	270K	5%	1/16W	
R872	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R873	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R874	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R875	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R876	1-216-810-11	METAL CHIP	120	5%	1/16W	
R877	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R878	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R879	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R880	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R881	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R882	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R884	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R885	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R886	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R887	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R888	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R889	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R890	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R891	1-216-296-91	CONDUCTOR, CHIP (3216)				
R892	1-216-158-00	METAL GLAZE	22	5%	1/8W	
R895	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R896	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R898	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R899	1-216-845-11	METAL CHIP	100K	5%	1/16W	

* A-7072-756-A VF-96 (XCPE) BOARD, COMPLETE
(TR2300E/TR3300E)
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(Ref. No. 5,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C901	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C902	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C903	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C904	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C905	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V	
C906	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C907	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V	
C908	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C909	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C910	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C911	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C912	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C913	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V	
C914	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C916	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C917	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C918	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C919	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V	
C920	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C921	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V	
C922	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	
C924	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C925	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C927	1-135-178-11	TANTAL. CHIP	1.5uF	20%	20V	
C929	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C930	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V	
C931	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C932	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C933	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C934	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	

Ref. No.	Part No.	Description	Remark
C935	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN901	1-766-658-21	CONNECTOR, FFC/FPC 22P	
CN902	1-573-925-11	CONNECTOR, FFC/FPC (ZIF) 16P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D901	8-713-102-80	DIODE 1T369-01-T8A	

< IC >

Ref. No.	Part No.	Description	Remark
IC901	8-759-364-03	IC MB88146PFV-G-BND-ER	
IC902	8-752-058-95	IC CXA1515Q-T4	
IC904	8-752-378-00	IC CXD2411AR-T4	

< COIL >

Ref. No.	Part No.	Description	Remark
L901	1-412-951-11	INDUCTOR 10uH	
L902	1-412-951-11	INDUCTOR 10uH	
L903	1-412-959-11	INDUCTOR 47uH	
L904	1-412-955-11	INDUCTOR 22uH	
L905	1-412-947-11	INDUCTOR 4.7uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q901	8-729-425-50	TRANSISTOR 2SB1462Q	
Q902	8-729-425-64	TRANSISTOR 2SD2216Q	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R901	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R902	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R903	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R904	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R905	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R906	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R907	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R908	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R909	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R911	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R912	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R913	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R914	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R915	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R917	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R921	1-218-905-11	METAL CHIP 270K 0.50% 1/16W	
R922	1-218-877-11	METAL CHIP 18K 0.50% 1/16W	
R923	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R924	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R929	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R930	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R934	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R935	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R936	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
*	A-7066-841-A	VF-104 (XP) BOARD, COMPLETE (TR2200E)	

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(Ref. No. 7,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C901	1-107-854-11	TANTAL. CHIP 68uF 20%	6.3V
C902	1-163-038-91	CERAMIC CHIP 0.1uF	25V
C903	1-135-145-11	TANTALUM CHIP 0.47uF 10%	35V
C904	1-162-965-11	CERAMIC CHIP 0.0015uF 10%	50V
C905	1-104-752-11	TANTAL. CHIP 33uF 20%	6.3V
C906	1-162-638-11	CERAMIC CHIP 1uF	16V
C907	1-104-563-11	FILM CHIP 0.1uF 5%	16V
C908	1-162-920-11	CERAMIC CHIP 27PF 5%	50V
C909	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
⚠C910	1-164-758-11	CERAMIC CHIP 0.0039uF 5%	50V
⚠C911	1-164-715-11	CERAMIC CHIP 0.0068uF 5%	50V
C912	1-107-854-11	TANTAL. CHIP 68uF 20%	6.3V
C913	1-135-145-11	TANTALUM CHIP 0.47uF 10%	35V
C914	1-107-689-21	TANTAL. CHIP 1uF 20%	35V
C915	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C916	1-164-611-11	CERAMIC CHIP 0.001uF 10%	500V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN901	1-573-506-41	CONNECTOR, FPC (NON ZIF) 4P	
CN902	1-573-290-21	PIN, CONNECTOR (1.5MM)(SMD) 4P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D901	8-719-951-21	DIODE PR1102W-TR (TALLY)	
D903	8-719-404-49	DIODE MA111	

< IC >

Ref. No.	Part No.	Description	Remark
IC901	8-759-196-14	IC BA7149F-E2	

< COIL >

Ref. No.	Part No.	Description	Remark
L901	1-412-031-11	INDUCTOR CHIP 47uH	
L902	1-410-387-11	INDUCTOR CHIP 33uH	
⚠L903	1-411-697-11	COIL, FERRITE (HLC)	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q901	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q902	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q903	8-729-216-31	TRANSISTOR 2SA1163-G	
Q904	8-729-230-63	TRANSISTOR 2SC4116-YG	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R901	1-216-817-11	METAL CHIP 470 5% 1/16W	
R902	1-216-817-11	METAL CHIP 470 5% 1/16W	
R903	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remark
R904	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R905	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R906	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R907	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R908	1-216-852-11	METAL CHIP	390K	5%	1/16W	
R909	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R910	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R911	1-216-160-00	METAL GLAZE	27	5%	1/8W	
R912	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R913	1-216-820-11	METAL CHIP	820	5%	1/16W	
R914	1-216-813-11	METAL CHIP	220	5%	1/16W	
R915	1-216-793-11	METAL GLAZE	4.7	5%	1/16W	
R916	1-218-881-11	METAL CHIP	27K	0.50%	1/16W	
R917	1-218-893-11	METAL CHIP	82K	0.50%	1/16W	
R918	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R919	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R920	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R921	1-216-795-11	METAL GLAZE	6.8	5%	1/16W	
R922	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R923	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R924	1-216-862-11	METAL GLAZE	2.7M	5%	1/16W	
R925	1-216-862-11	METAL GLAZE	2.7M	5%	1/16W	
R926	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R927	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R928	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R929	1-216-818-11	METAL CHIP	560	5%	1/16W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description
RV903	1-238-852-11	RES, ADJ, CERMET 470
RV904	1-223-566-11	RES, ADJ, METAL GLAZE 1M

< TRANSFORMER >

Ref. No.	Part No.	Description
⚠T901	1-453-124-11	TRANSFORMER ASSY, FLYBACK

< THERMISTOR >

Ref. No.	Part No.	Description
TH901	1-809-350-21	THERMISTOR, NTC (470)

< SOCKET >

Ref. No.	Part No.	Description
⚠W901	1-540-019-21	SOCKET ASSY, CRT

---

* A-7072-692-A VP-45 (XCR) BOARD, COMPLETE

****

(Ref. No. 9,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description				Remark
C601	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C602	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C603	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C604	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C605	1-128-257-21	ELECT CHIP	33uF	20%	10V	
C606	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C607	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C609	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C610	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C612	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C613	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C614	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C615	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C616	1-128-257-21	ELECT CHIP	33uF	20%	10V	
C617	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C618	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C619	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V	
C620	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V	
C621	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	
C622	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	
C623	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C624	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C625	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C627	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C628	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C629	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C634	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C635	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C636	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C638	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C639	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C640	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V	
C641	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C642	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C643	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C644	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C645	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C646	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	

< CONNECTOR >

Ref. No.	Part No.	Description
CN601	1-766-343-21	CONNECTOR, FFC/FPC 13P
CN603	1-766-343-21	CONNECTOR, FFC/FPC 13P

< IC >

Ref. No.	Part No.	Description	
IC601	8-759-234-77	IC	TC4S66F
IC602	8-759-058-45	IC	NJM3403AV(TE2)
IC603	8-759-080-34	IC	TA75W01FU-TE12R
IC604	8-759-234-77	IC	TC4S66F
IC605	8-759-337-41	IC	NJM2902V(TE2)
IC606	8-759-058-45	IC	NJM3403AV(TE2)
IC607	8-759-359-49	IC	NJM3414AV(TE2)
IC608	8-759-359-49	IC	NJM3414AV(TE2)
IC609	8-759-248-78	IC	MB88102PFV-G-BND-ER

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
IC610	8-759-050-51	IC SN74HCT04APW-E20	
IC611	8-752-867-94	IC CXP81120-017R	
		< COIL >	
L601	1-412-058-11	INDUCTOR CHIP 10uH	
L602	1-412-951-11	INDUCTOR 10uH	
L603	1-412-963-11	INDUCTOR 100uH	
L604	1-412-951-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q601	8-729-429-18	TRANSISTOR UN9213	
Q602	8-729-425-50	TRANSISTOR 2SB1462Q	
Q603	8-729-013-31	TRANSISTOR 2SA1588-OY-TE85L	
Q604	8-729-429-18	TRANSISTOR UN9213	
Q605	8-729-037-76	TRANSISTOR UN9215J-(TX).SO	
		< RESISTOR >	
R601	1-216-803-11	METAL CHIP 33 5% 1/16W	
R602	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R603	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R604	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R605	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R606	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R607	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R608	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R609	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R610	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R611	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R612	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R613	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R614	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R615	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R616	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R617	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R618	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R619	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R620	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R621	1-218-843-11	METAL CHIP 680 0.50% 1/16W	
R622	1-218-843-11	METAL CHIP 680 0.50% 1/16W	
R624	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R625	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R626	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R627	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R628	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R629	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R630	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R631	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R633	1-218-847-11	METAL CHIP 1K 0.50% 1/16W	
R634	1-218-847-11	METAL CHIP 1K 0.50% 1/16W	
R635	1-216-845-11	METAL CHIP 100K 5% 1/16W	

Ref.No.	Part No.	Description	Remark
R636	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R637	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R638	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	
R639	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R640	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	
R641	1-218-859-11	METAL CHIP 3.3K 0.50% 1/16W	
R643	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	
R644	1-218-859-11	METAL CHIP 3.3K 0.50% 1/16W	
R645	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R646	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	
R647	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	
R648	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R649	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	
R651	1-218-887-11	METAL CHIP 47K 0.50% 1/16W	
R652	1-218-887-11	METAL CHIP 47K 0.50% 1/16W	
R653	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R654	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R655	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R656	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R657	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R658	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R659	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R660	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R663	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R664	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R665	1-216-864-11	METAL CHIP 0 5% 1/16W	
R667	1-216-864-11	METAL CHIP 0 5% 1/16W	
		< SENSOR >	
SE601	1-810-889-81	SENSOR, ANGULAR VELOCITY (PITCH)	
SE602	1-810-889-71	SENSOR, ANGULAR VELOCITY (YAW)	
		< VIBRATOR >	
X601	1-579-553-11	VIBRATOR (12MHz)	

MISCELLANEOUS
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24	8-917-540-90	REMOCON RMT-715//M SET (TR2300E:JE/TR3300E:AUS, E)	
25	8-917-541-90	REMOCON RMT-716//M SET (TR2200E/TR2300E:E, HK/TR3300E:AEP, UK)	
56	1-473-691-11	SWITCH BLOCK, CONTROL	
112	1-660-297-11	FP-423 FLEXIBLE BOARD	
113	1-473-603-11	SWITCH BLOCK, CONTROL(CF-6400)	
155	1-660-296-11	FP-420 FLEXIBLE BOARD	
163	1-660-285-11	FP-386 FLEXIBLE BOARD	
208	1-660-303-11	FP-395 FLEXIBLE BOARD	
252	1-660-278-11	FP-378 FLEXIBLE BOARD	
256	1-660-279-11	FP-379 FLEXIBLE BOARD	

Ref. No.	Part No.	Description	Remark
257	1-660-293-11	FP-376 FLEXIBLE BOARD	
259	1-661-228-11	FP-462 FLEXIBLE BOARD	
261	1-660-295-11	FP-419 FLEXIBLE BOARD	
262	1-660-283-11	FP-383 FLEXIBLE BOARD	
263	1-660-300-11	FP-426 FLEXIBLE BOARD	
266	1-660-298-11	FP-401 FLEXIBLE BOARD	
267	1-660-531-11	FP-429 FLEXIBLE BOARD	
301	1-661-052-11	FP-457 FLEXIBLE BOARD	
309	1-547-767-41	FILTER BLOCK, OPTICAL	
315	1-660-294-11	FP-400 FLEXIBLE BOARD	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
BL002	1-517-527-11	LIGHT, BACK	
⚠BL802	1-519-746-91	TUBE, FLUORESCENT (0.7 INCH)	
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P	
D001	8-719-988-42	DIODE GL453	
IC401	A-7030-744-A	CCD BLOCK ASSY (AUTO)(079 SERVICE) (CCD IMAGER)	
J201	1-537-747-21	TERMINAL BOARD	
J901	1-694-076-11	TERMINAL BOARD, BATTERY (TR2300E)	
J901	1-694-076-21	TERMINAL BOARD, BATTERY(TR2200E/TR3300E)	
J902	1-565-276-21	JACK, ULTRA SMALL 1P (LANC)	
J903	1-695-514-21	JACK (SMALL TYPE) 1P (HEADPHONE)	
LCD901	1-801-206-11	DISPLAY PANEL, LIQUID CRYSTAL	
LCD902	8-753-016-07	LCX009AK-4	
M901	A-7048-810-A	DRUM ASSY (DGH-0C4A-R)	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
MIC901	1-542-259-11	MICROPHONE, CAP (Lch)	
MIC902	1-542-259-11	MICROPHONE, CAP (Rch)	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (Hi8 MP, ME/MP, REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C. LOCK)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	
S903	1-571-315-11	SWITCH, KEY BOARD (START/STOP)	
S904	1-553-977-00	SWITCH, SLIDE (STANDBY/LOCK)	
SE601	1-810-889-81	SENSOR, ANGULAR VELOCITY (PITCH)	
SE602	1-810-889-71	SENSOR, ANGULAR VELOCITY (YAW)	
⚠V901	1-452-673-31	CRT ASSY	

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-575-334-11	CORD, CONNECTION (A/V connecting cable (STEREO), 1.5m)	
⚠	1-764-622-11	ADAPTOR, CONVERSION, 2P (TR2200E/TR2300E/TR3300E:AEP, UK)	
	1-769-166-11	CORD, CONNECTION (AC POWER ADAPTOR connecting cable, 2.1m) (TR2200E:AEP)	
	3-856-204-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (TR2200E/TR3300E:AEP, UK)	
	3-856-204-41	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (TR2200E:AEP/TR3300E:AEP)	
	3-856-204-51	MANUAL, INSTRUCTION (FRENCH, DUTCH) (TR2200E:AEP/TR3300E:AEP)	
	3-856-204-61	MANUAL, INSTRUCTION (SWEDISH, PORTUGUESE) (TR2200E:AEP/TR3300E:AEP)	
	3-856-548-11	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (TR2300E/TR3300E:AUS, E)	
	3-856-548-21	MANUAL, INSTRUCTION (FRENCH, GERMAN) (TR2300E:E/TR3300E:E)	
	3-856-548-31	MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TR2300E:E/TR3300E:E)	
	3-856-548-41	MANUAL, INSTRUCTION (CHINESE) (TR2300E:E/TR3300E:E)	
	3-947-969-21	BELT (S), SHOULDER	
*	3-970-769-01	CUSHION, ACC	
*	3-970-770-01	CUSHION (LOWER)	
*	3-970-771-01	INDIVIDUAL CARTON (TR2200E)	
*	3-970-771-21	INDIVIDUAL CARTON (TR2300E)	
*	3-971-418-01	INDIVIDUAL CARTON (TR3300E)	
	8-917-540-90	REMOCON RMT-715//M SET (TR2300E/TR3300E:AUS, E)	
	8-917-541-90	REMOCON RMT-716//M SET (TR2200E/TR3300E:AEP, UK)	
⚠	A-7009-236-A	AC-V315 POWER ADAPTOR (TR2300E:E, JE)	
⚠	A-7009-238-A	AC-V316 POWER ADAPTOR (TR2300E:HK)	
⚠	A-7009-240-A	AC-V315 POWER ADAPTOR (TR2200E/TR3300E: AEP)	
⚠	A-7009-241-A	AC-V315 POWER ADAPTOR (TR3300E:UK)	
⚠	A-7009-242-A	AC-V315 POWER ADAPTOR (TR3300E:E)	
⚠	A-7009-243-A	AC-V315 POWER ADAPTOR (TR3300E:E, AUS)	
	A-7092-699-A	CASE (L) ASSY, BATTERY	
**	HSA-515	HANDYCAM STATION	
**	HSA-EC1	EDIT STATION	
***	NP-F530	BATTERY PACK	

Note.

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.

*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

Be sure to read "Note on the CCD Imager replacement" on page 4–8 when changing the CCD imager.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 6
ADJUSTMENTS

6-1. CAMERA SECTION ADJUSTMENTS

Refer to page 2 as for "Table for difference of functions" of models and classiffication.

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Color monitor
- Regulated power supply
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95-remodeled partly)Note 1	J-6082-053-B	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	CPC-5 jig	J-6082-351-A	For the color viewfinder adjustment For adjusting the video section
J-8	Power code	J-6082-223-A	For connecting the battery terminal and DC power supply
J-9	AFM DEV jig	J-6082-312-A	For adjusting the deviation
J-10	Extension cable (60P, 0.5 mm)	J-6082-356-A	For extension between the HI-40 board (CN501) and VC-177 board (CN110)
J-11	Clear chart	J-6080-621-A	
J-12	Extension cable (16P, 0.5 mm)	J-6082-357-A	For extension between the CD-149 board (CN112) and VC-177 board (CN112)
J-13	Extension cable (50P, 0.5 mm)	J-6082-355-A	For extension between the MM-32 board (CN701) and VC-177 board (CN204)
J-14	EZ clip jig	J-6082-244-A	For extension between the EZ-21 board (CN201) and VC-177 board (CN204)

Note 1: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

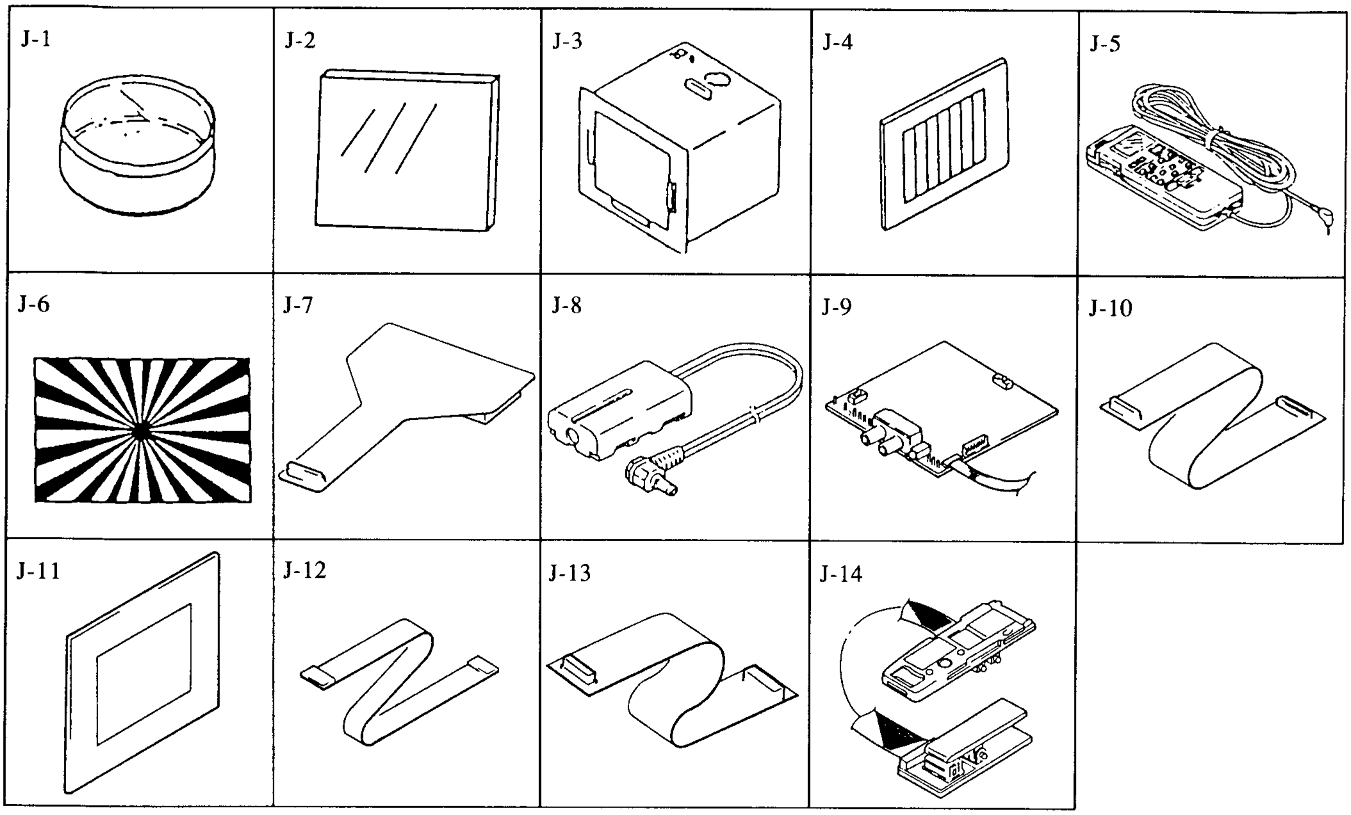

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
J-11
J-12
J-13
J-14

Fig. 6-1-1.

1-1-2. Preparations

Note 1: Refer to "Section 2. DISASSEMBLY" for details of how to remove the cabinet and boards.

Note 2: If performing only adjustments, the lens block and VC-177 board need not be adjusted.

1) Connect the adjusting equipment according to Fig. 6-1-3.
2) The F panel block (MA-269 board and focus ring) is not needed to connect to the unit. Disconnect the following connectors when removing the F panel block.
    1. CN107 of VC-177 board (14P, 0.5 mm)
    2. 8P connector of the focus ring

Note 3: Set the focus with the PUSH AUTO button (CF block S123).

3) By setting the "forced camera power ON mode", the camera power supply can be turned on even if the camera power supply (R) (CF block, LC-53 board) has been removed. However, focus operations cannot be performed. Disconnect the following connectors when removing the cabinet (R).
    1. CN111 of VC-177 board (20P, 0.5 mm)
    2. CN502 of HI-40 board (24P, 0.5 mm)

After the adjustments, be sure to exit the "forced camera power supply ON mode".

Note 4: Setting the "forced camera power supply ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.

The camera power supply can be turned ON even if the cabinet (R) has been removed using the above steps. After completing adjustments, be sure to exit the "forced power supply ON mode".

Note 5: Exiting the "forced camera ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 1, address: 01.

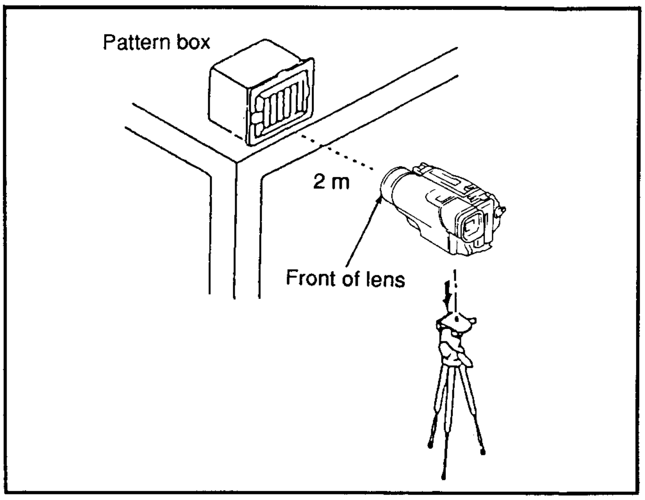


Fig. 6-1-2.

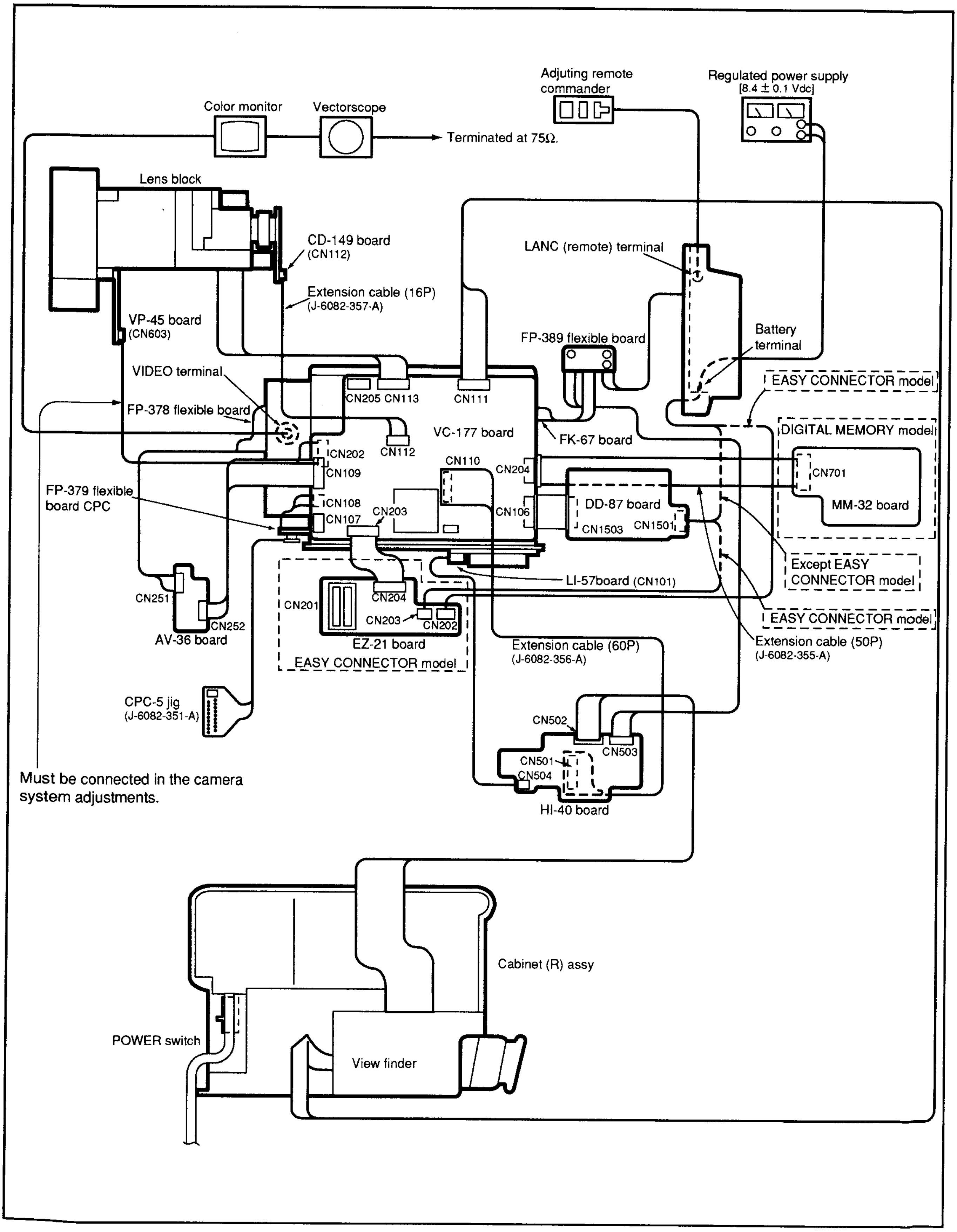

Adjuting remote commander
Regulated power supply
[8.4 ± 0.1 Vdc]
Color monitor
Vectorscope
Terminated at 75Ω.
Lens block
CD-149 board
(CN112)
Extension cable (16P)
(J-6082-357-A)
LANC (remote) terminal
VP-45 board
(CN603)
FP-389 flexible board
Battery terminal
VIDEO terminal
EASY CONNECTOR model
CN205
CN113
CN111
FP-378 flexible board
VC-177 board
FK-67 board
DIGITAL MEMORY model
CN202
CN112
CN110
CN204
CN701
CN109
FP-379 flexible board CPC
CN108
CN203
CN106
DD-87 board
MM-32 board
CN107
CN1503
CN1501
Except EASY CONNECTOR model
LI-57board (CN101)
CN251
CN201
CN204
CN203
CN202
EASY CONNECTOR model
CN252
AV-36 board
EZ-21 board
EASY CONNECTOR model
Extension cable (60P)
(J-6082-356-A)
Extension cable (50P)
(J-6082-355-A)
CPC-5 jig
(J-6082-351-A)
CN502
CN503
CN501
CN504
HI-40 board
Must be connected in the camera system adjustments.
Cabinet (R) assy
POWER switch
View finder

Fig. 6-1-3.

1-1-3. Precautions

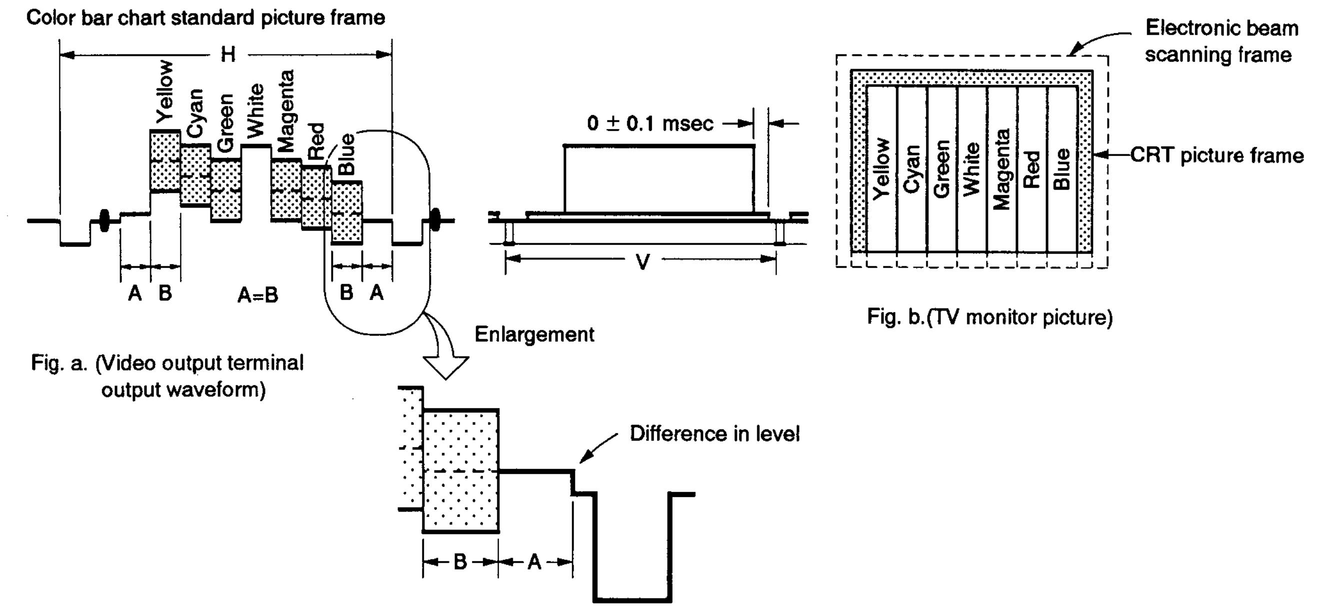
1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

1. Camera/Player (or VTR) power switch (S101 on CF block) .... Camera
2. Digital zoom switch (Menu display) .... Off
3. Steady shot switch (S103 on CF block) .... Off
4. Focus switch (S102 on CF block) .... Manual
5. Auto lock switch (S121 on CF block) .... Auto lock
6. AE shift (Menu display) .... Center
7. Back light switch (S106 on CF block) .... Off
8. 16:9 WIDE button (S114 on CF block) .... Off
9. Picture effect button (S112 on CF block) .... Off
10. Digital effect button (S122 on CF block) .... Off

2. Adjusting Procedure

Adjust in the given order.


Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
Fig. a. (Video output terminal output waveform)
0 ± 0.1 msec
V
Enlargement
Difference in level
B
A
Electronic beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
Fig. b.(TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 6-1-4.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in Fig. 6-1-4. if adjustments are performed using the color bar chart. (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm x 841 mm) paper to a black one, and make the chart shown in Fig. 6-1-5.

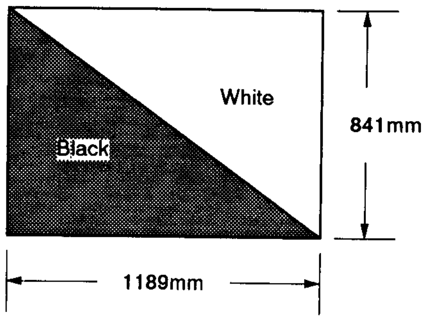

White
Black
841mm
1189mm

Fig. 6-1-5.

Note: Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

1-1-4. Adjusting Remote Commander

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the remote terminal.
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 6-1-6.

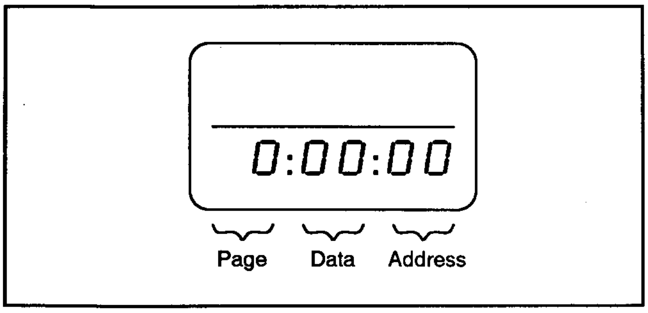


Fig. 6-1-6.

3) Operate the adjusting remote commander as follows.
   - Changing the page

     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 6-1-1.

   - Changing the address

     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)

     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed.

     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data

     The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory. (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
4) Select page: 0, address: 01, and set the data to 01, and enables Page D and E,F to be adjusted.
5) After completing all adjustments, set data: 00 to page: 0, address: 01 and turn off the main power supply (8.4V) once.

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

1-1-5. Page F Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page F, Page E Data Initialization" and "Page F Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Note 3: ( ): AEP, UK model (TYPE A/C)
[ ]: E, Australian, Hong Kong model (TYPE B/D)

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
00	B0	B0	B0	
01				
02	(02)[04]	04	02	
03				
04				
05	9F	9F	9F	
06	B8	B8	B8	
07	5E	5E	5E	
08	3E	3E	3E	
09	53	53	53	
0A	69	69	69	
0B	93	93	93	
0C				
0D				
0E				
0F				
10	00	00	00	
11	00	00	00	
12	00	00	00	
13	00	00	00	
14	00	00	00	
15	00	00	00	
16	00	00	00	
17	00	00	00	
18	00	00	00	
19	00	00	00	
1A	00	00	00	
1B	00	00	00	
1C	F3	73	53	←
1D	04	04	04	←
1E	21	21	21	←
1F	32	32	32	←
20	02	02	02	←
21	46	46	46	←
22	3B	3B	3B	
23	00	00	00	←

Table 6-1-2 (1).

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
24	7C	7C	7C	←
25	80	80	80	←
26	1F	1F	1F	←
27	(40)[41]	41	40	←
28	46	46	46	←
29	00	00	00	
2A	FE	FE	FE	
2B	3B	3B	3B	
2C	77	77	77	
2D	56	56	56	
2E	18	18	18	
2F	1B	1B	1B	
30	C8	C8	C8	
31	24	24	24	
32	E3	E3	E3	
33	15	15	15	
34	00	00	00	
35	00	00	00	
36	00	00	00	
37	0A	0A	0A	
38	80	80	80	
39	80	80	80	
3A	A0	A0	A0	
3B	65	65	65	
3C	65	65	65	
3D	30	30	30	
3E	1B	1B	1B	
3F	1B	1B	1B	
40	AE	AE	AE	
41	42	42	42	
42	44	44	44	
43	34	34	34	
44	2A	2A	2A	
45	89	89	89	
46	59	59	59	
47	38	38	38	
48	41	41	41	
49	2D	2D	2D	
4A	00	00	00	
4B	00	00	00	
4C	00	00	00	
4D	0A	0A	0A	
4E	00	00	00	
4F	00	00	00	

Table 6-1-2 (2).

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
50	00	00	00	
51	00	00	00	
52	80	80	80	
53	80	80	80	
54	20	20	20	
55	20	20	20	
56	00	00	00	←
57	00	00	00	←
58	00	00	00	←
59	BB	BB	BB	←
5A	C8	C8	C8	←
5B	CA	CA	CA	←
5C	3C	3C	3C	
5D	00	00	00	←
5E	7A	7A	7A	
5F	8D	8D	8D	
60	7A	7A	7A	
61	3A	3A	3A	←
62	B0	B0	B0	
63	00	00	00	
64	AA	AA	AA	
65	30	30	30	←
66	60	60	60	
67	7C	7C	7C	
68	60	60	60	←
69	40	40	40	←
6A	20	20	20	←
6B	F8	F8	F8	←
6C	80	80	80	←
6D	15	15	15	←
6E	47	47	47	←
6F	20	20	20	←
70	70	70	70	
71	70	70	70	
72	70	70	70	
73	70	70	70	
74	6B	6B	6B	
75	78	78	78	
76	B8	B8	B8	
77	B8	B8	B8	
78	B8	B8	B8	
79	B8	B8	B8	
7A	7E	7E	7E	
7B	7E	7E	7E	

Table 6-1-2 (3).

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
7C	7E	7E	7E	
7D	7E	7E	7E	
7E	98	98	98	
7F	80	80	80	
80	D4	D4	D4	←
81	80	80	80	←
82	0C	0C	0C	←
83	01	01	01	←
84	77	77	77	←
85	30	30	30	←
86	75	75	75	←
87	83	83	83	←
88	12	12	12	←
89	BB	BB	BB	←
8A	A5	A5	A5	←
8B	68	68	68	←
8C	4A	4A	4A	←
8D	F0	F0	F0	←
8E	00	00	00	←
8F	01	01	01	←
90	28	28	28	←
91	60	60	60	←
92	40	40	40	←
93	29	29	29	←
94	28	28	28	←
95	70	70	70	←
96	40	40	40	←
97	25	25	25	←
98	28	28	28	←
99	80	80	80	←
9A	40	40	40	←
9B	10	10	10	←
9C	28	28	28	←
9D	FF	FF	FF	←
9E	40	40	40	←
9F	10	10	10	←
A0	28	28	28	←
A1	70	70	70	←
A2	30	30	30	←
A3	00	00	00	←
A4	28	28	28	←
A5	E0	E0	E0	←
A6	30	30	30	←
A7	00	00	00	←

Table 6-1-2 (4).

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
A8	60	60	60	←
A9	91	91	91	←
AA	70	70	70	←
AB	92	92	92	←
AC	70	70	70	←
AD	A2	A2	A2	←
AE	70	70	70	←
AF	A3	A3	A3	←
B0	04	04	04	←
B1	D5	D5	D5	←
B2	04	04	04	←
B3	D6	D6	D6	←
B4	40	40	40	←
B5	00	00	00	←
B6	B3	B3	B3	←
B7	B3	B3	B3	←
B8	10	10	10	←
B9	01	01	01	←
BA	10	10	10	←
BB	03	03	03	←
BC	40	40	40	←
BD	32	32	32	←
BE	00	00	00	←
BF	00	00	00	←
C0	22	22	22	←
C1	80	80	80	←
C2	22	22	22	←
C3	20	20	20	←
C4	40	40	40	←
C5	00	00	00	←
C6	40	40	40	←
C7	00	00	00	←
C8	00	00	00	←
C9	27	27	27	←
CA	CA	CA	CA	←
CB	00	00	00	←
CC	50	50	50	←
CD	C4	C4	C4	←
CE	1B	1B	1B	←
CF	E0	E0	E0	←
D0	A0	A0	A0	←
D1	28	28	28	←
D2	1A	1A	1A	←
D3	C0	C0	C0	←

Table 6-1-2 (5).

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
D4	6A	6A	6A	←
D5	40	40	40	←
D6	60	60	60	←
D7	55	55	55	←
D8	66	66	66	←
D9	26	26	26	←
DA	34	34	34	←
DB	3F	3F	3F	←
DC	00	00	00	←
DD	00	00	00	←
DE	80	80	80	←
DF	00	00	00	
E0	F5	F5	F5	
E1	1A	1A	1A	
E2	33	33	33	
E3	FE	FE	FE	
E4	3C	3C	3C	
E5	24	24	24	
E6	83	83	83	
E7	A0	A0	A0	
E8	67	67	67	
E9	4D	4D	4D	
EA	33	33	33	
EB	5C	5C	5C	
EC	5C	5C	5C	
ED	5C	5C	5C	
EE	3C	3C	3C	
EF	0F	0F	0F	
F0	10	10	10	
F1	2C	2C	2C	
F2	0A	0A	0A	
F3	36	36	36	
F4	72	72	72	
F5	46	46	46	
F6	E0	E0	E0	
F7	50	50	50	
F8	3B	3B	3B	
F9	10	10	10	
FA	E8	E8	E8	
FB	90	90	90	
FC	00	00	00	
FD	02	02	02	
FE	F3	F3	F3	
FF	81	81	81	

Table 6-1-2 (6).

1-1-6. Page E Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page F, Page E Data Initialization" and "Page E Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
00	5B	5B	5B	←
01	89	89	89	←
02	14	14	14	←
03	4E	4E	4E	←
04	5B	5B	5B	←
05	64	64	64	←
06	93	93	93	←
07	AA	AA	AA	←
08	61	61	61	←
09	44	44	44	←
0A	C2	C2	C2	←
0B	92	92	92	←
0C	A6	A6	A6	←
0D	6D	6D	6D	←
0E	61	61	61	←
0F	33	33	33	←
10	05	05	05	←
11	F3	F3	F3	←
12	FF	FF	FF	←
13	AD	AD	AD	←
14	C6	C6	C6	←
15	40	40	40	←
16	2D	2D	2D	←
17	F8	F8	F8	←
18	00	00	00	←
19	00	00	00	←
1A	00	00	00	←
1B	00	00	00	←
1C	EE	EE	EE	←
1D	ED	ED	ED	←
1E	FE	FE	FE	←
1F	00	00	00	←
20	00	00	00	←
21	00	00	00	←
22	00	00	00	←
23	00	00	00	←
24	00	00	00	←
25	00	00	00	←

Table 6-1-3 (1).

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
26	08	08	08	←
27	28	28	28	←
28	40	40	40	←
29	03	03	03	←
2A	08	08	08	←
2B	08	08	08	←
2C	FF	FF	FF	←
2D	6A	6A	6A	←
2E	25	25	25	←
2F	79	79	79	←
30	0A	0A	0A	←
31	05	05	05	←
32	30	30	30	←
33	40	40	40	←
34	08	08	08	←
35	08	08	08	←
36	20	20	20	←
37	40	40	40	←
38	30	30	30	←
39	50	50	50	←
3A	2A	2A	2A	←
3B	4A	4A	4A	←
3C	20	20	20	←
3D	25	25	25	←
3E	0A	0A	0A	←
3F	07	07	07	←
40	20	20	20	←
41	00	00	00	←
42	40	40	40	←
43	1E	1E	1E	←
44	00	00	00	←
45	F8	F8	F8	←
46	22	22	22	←
47	10	10	10	←
48	08	08	08	←
49	04	04	04	←
4A	6C	6C	6C	←
4B	00	00	00	←
4C	8D	8D	8D	←
4D	41	41	41	←
4E	08	08	08	←
4F	02	02	02	←
50	F8	F8	F8	←
51	F8	F8	F8	←

Table 6-1-3 (2).

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
52	9C	9C	9C	←
53	8E	8E	8E	←
54	74	74	74	←
55	5F	5F	5F	←
56	4A	4A	4A	←
57	3F	3F	3F	←
58	2F	2F	2F	←
59	10	10	10	←
5A	00	00	00	←

Table 6-1-3 (3).

1-1-7. Data Processing

The calculation of the DDS display and the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 6-1-4. indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

The lower digits of the hexadecimal notation The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② ↓ D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) indicate the adjusting remote control unit display.

(Example) In the case that the DDS display and the adjusting remote control unit display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 6-1-4.

1-2. CAMERA SYSTEM ADJUSTMENTS

1. Initialization of E, F Page Data

Note 1: If the E, and F page data has been initialized, the "Modification of F Page Data", and "Modification of E Page Data", "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments" need to be performed again.

Note 2: Don't disconnect the VP-45 board.

Initializing method:

Adjusting page	E
Adjusting address	00 to 5A
Adjusting page	F
Adjusting address	10 to FF

1) Set data: 01 to page: 0, address: 01.
2) Set data: 2D to page: 2, address: 00.
3) Set data: 2D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the data of page: 2, address: 02 is 01.
5) Set data: 00 to page: 0, address: 01.
6) After performing "Modification of E, F Page Data", perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

2. Modification of F Page Data

If the E and F page data has been initialized, change the data as shown in the table on the right by manual input.

Note 1: Before changing the data, set data: 80 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the new data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01. Also perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

Note 4: Don't disconnect the VP-45 board.

Note 5: ( ): AEP, UK model (TYPE A/C)
[ ]: E, Australian, Hong Kong model (TYPE B/D)

Address	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886
00	B0	B0	B0
02	(02)[04]	04	02
05	9F	9F	9F
06	B8	B8	B8
07	5E	5E	5E
08	3E	3E	3E
09	53	53	53
0A	69	69	69
0B	93	93	93
1C	F3	73	53

Address	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886
1D	04	04	04
27	(40)[41]	41	40
28	46	46	46
5A	C8	C8	C8
5B	CA	CA	CA
61	3A	3A	3A
69	40	40	40
74	6B	6B	6B
75	78	78	78
7E	98	98	98
7F	80	80	80
80	D4	D4	D4
85	30	30	30
89	BB	BB	BB
91	60	60	60
93	29	29	29
95	70	70	70
97	25	25	25
99	80	80	80
9B	10	10	10
9D	FF	FF	FF
9F	10	10	10
A1	70	70	70
A3	00	00	00
A5	E0	E0	E0
A7	00	00	00
A9	91	91	91
AA	70	70	70
AB	92	92	92
AC	70	70	70
AD	A2	A2	A2
AE	70	70	70
AF	A3	A3	A3
B1	D5	D5	D5
B3	D6	D6	D6
B4	40	40	40
CF	E0	E0	E0
D2	1A	1A	1A
D5	40	40	40
D6	60	60	60
DC	00	00	00
DF	00	00	00
E0	F5	F5	F5
E1	1A	1A	1A
E2	33	33	33
F9	10	10	10
FD	02	02	02

3. Modification of E Page Data

If the E and F page data has been initialized, change the data as shown in the following table by manual input.

Note 1: Before changing the data, set data: 01 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the new data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01. Also perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

Note 4: Don't disconnect the VP-45 board.

Address	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886
08	61	61	61
12	FF	FF	FF
13	AD	AD	AD
14	C6	C6	C6
15	40	40	40
1C	EE	EE	EE
1D	ED	ED	ED
1E	FE	FE	FE
2A	08	08	08
2B	08	08	08
36	20	20	20
37	40	40	40
38	30	30	30
39	50	50	50
3B	4A	4A	4A
3D	25	25	25
40	20	20	20
41	00	00	00
4C	8D	8D	8D
50	F8	F8	F8
51	F8	F8	F8

4. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and hall offset.

Subject	Not required
Measurement Point	DDS display of EVF or monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3B, 3C
Specified Value	13 to 17 during IRIS OPEN (Note 1) 7F to 83 during IRIS CLOSE (Note 2)

Note 1: Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

Note 2: Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 0, address: 03.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 80 to page: F, address: 3C, and press the PAUSE button of the adjusting remote commander.
6) Set data: 40 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
7) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the monitor TV display), and this data is named W_2.
8) Set data: 30 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
9) Read the DDS display data, and this data is named W_1.
10) Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
11) Read the DDS display data, and this data is named K_1.
12) Set data: 40 to page: F, address: 3B, and press the PAUSE button.
13) Read the DDS display data, and this data is named K_2.
14) Convert W_1, W_2, K_1, K_2 to decimal notation, and obtain W_1', W_2', K_1', K_2'. (Refer to Table 6-1-4. "Hexadecimal notation-decimal notation conversion table".)
15) Calculate X_1' using the following equations (decimal notation calculation).

$$A' = W_2' + K_1' - W_1' - K_2' \quad \text{.......... Equation 1}$$

$$B' = W_1' - K_1' \quad \text{.......... Equation 2}$$

$$X_1' = \frac{1728 + (48 \times A') - (16 \times B')}{A'} \quad \text{.......... Equation 3}$$

16) Convert X_1' to hexadecimal notation, and obtain X_1. (Round off to one decimal place)
17) Set data: X_1 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
18) Change the data of page: F, address: 3C, and adjust the DDS display data to "15".

19) Press the PAUSE button of the adjusting remote commander.
20) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
21) Read the DDS display data, and this data is named W_0. If W_0 lies within the "7F" to "83" range, perform "Processing after completing adjustments". If it lies outside the range, perform the following adjustments.
22) Convert W_0 to decimal notation, and obtain W_0'.
23) Calculate X_2' using the following equations (decimal notation calculation).

$$C' = W_0' - B' - 21 \text{ .... Equation 4}$$

$$X_2' = \frac{(108 - B') \times (X_1' - 48) + 48 \times C'}{C'} \text{ .... Equation 5}$$

(X_1' and B' are values obtained from equations 2 and3)

24) Convert X_2' to hexadecimal notation and obtain X_2. (Round off to one decimal place)
25) Set data X_2 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
26) Change the data of page: F, address: 3C, and adjust the DDS display data to "81".
27) Press the PAUSE button of the adjusting remote commander.
28) Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
29) Check that the DDS display data lies within the "13" to "17" range.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 03.
4) Set data: 00 to page: 0, address: 01.

5. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically. If it is not adjusted correctly, it will be out of focus during auto focusing /manual focusing.

5-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (2 m from the front of the protection glass) (Luminance: 300 ± 50 lux)
Measurement Point	Check operations on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

Adjusting method:

1) Check that at both the zoom lens TELE terminal and WIDE terminal, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Set data: 01 to page: 0, address: 01.
3) Check that the data of page: F, address: 2E to 33, 49 to 4D is the initial value (see table below).

Address	Data	Address	Data
2E	18	33	15
2F	1B	49	25
30	C8	4A	00
31	24	4B	19
32	E3	4C	00

4) Check that the data of page: 2, address: 02 is 00.
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 27 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
(The adjustment data will be automatically input to page: F, address: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments

1) Turn OFF the main power supply (8.4V)
2) Perform "Flange Back Adjustment (2)".

5-2. Flange Back Adjustment (2)

Perform this adjustment after performing “Flange Back Adjustment (1)”.

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

Adjusting Method:

1) Set the IRIS to open. (Use a ND filter)
2) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away (subjects with clear contrast such as buildings, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
3) Set data: 01 to page: 0, address: 01.
4) Check that the data of page: 2, address: 02 is “00".
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 27 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
   (Adjustment data will automatically be input to page: F, addresses: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is “01".

Processing after Completing Adjustments

1) Set data: 00 to page: 0, address: 01.
2) Turn OFF the main power supply (8.4V).
3) Perform “Flange Back Check”.

6. Flange Back Check

Subject	Siemens star (2m from the front of the protection glass Luminance: approx. 200 lux)
Measurement Point	Check the operation on the TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Checking method:

1) Place the Siemens star 2m from the front of the protection glass.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appears on the image.
3) Set data: 02 to page: 2, address: 40.
4) Set data: 01 to page: 2, address: 41.
5) Shoot the siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note 1), and turn off the auto focus
8) Set data: 10 to page: 2, address: 21.
9) Shoot the siemens star with the zoom WIDE end.
10) Check that the lens is focused.

Note 1: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on page 1 of the adjusting remote commander.

1) Set data: 0F to page: 0, address: 03.
2) Page 1 shows the state of the focus.

1 : 00 : XX
→ (Odd: Focused
Even: Unfocused)

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 21.
2) Set data: 00 to page: 0, address: 03.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 2, address: 41.

7. Picture Frame Setting

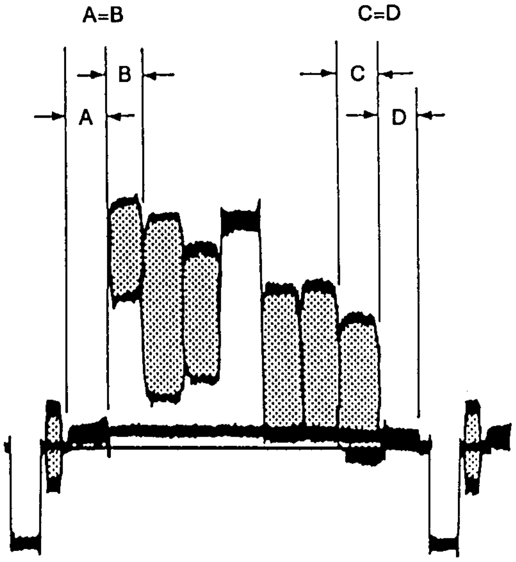
Subject	Color bar chart standard picture frame (2m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A = B, C = D, t = 0 ± 0.1 msec

Setting method:

1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "color bar chart standard picture frame".

Check on the oscilloscope

1. horizontal period



2. Vertical period

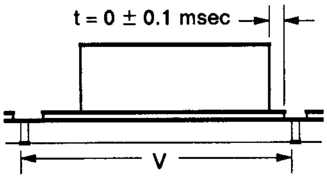


Fig. 6-1-7.

Check on the TV monitor

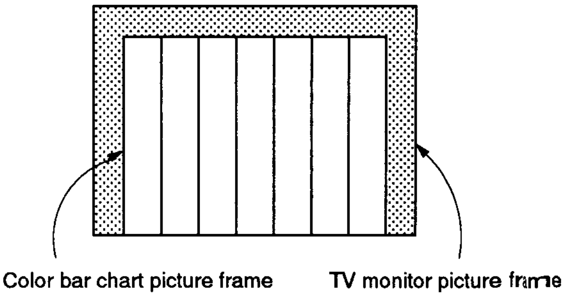


Fig. 6-1-8.

8. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that the proper color reproduction is produced.

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	3F, 41, DF, E0
Specified Value	All color luminance points should settle within each color reproduction frame.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 3D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 3F to page: F, address: 22, and press the PAUSE button of the adjusting remote commander.
4) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
5) Change the data of addresses 3F, 41, DF and E0 of page: F, and settle each color luminance point in each color reproduction frame.

   Note 1: Be sure to press the PAUSE button of the adjusting remote commander before changing the addresses.
   If not, the new data will not be written to the memory.
6) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01 and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 0, address: 01.

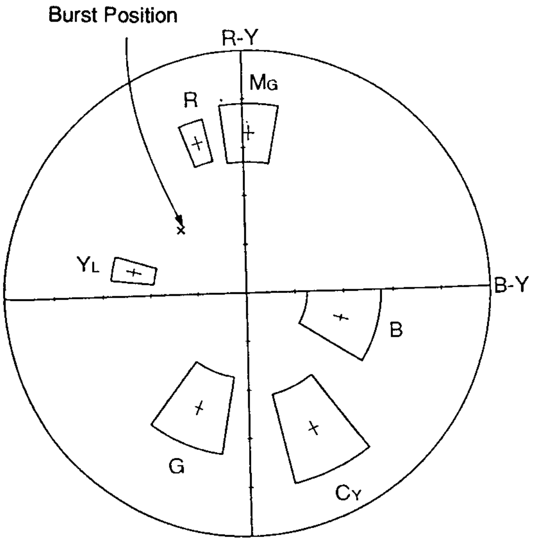


Fig. 6-1-9.

9. IRIS IN/OUT Adjustment

For the unit to judge if the white balance is indoors or outdoors in auto white balance operations, measure the light level and write it in the EEPROM.
If the level is not correct, the white balance will not be accurate.

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	47, 48

Switch setting:

1) STEADY SHOT switch (S103 on CF block) .... OFF

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 06 to page: 0, address: 03.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 02 to page: 2, address: 40.
5) Set data: 0B to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Read the DDS display data (Note 1), and take the upper two digits as D_1 and the lower two as D_2.
7) Convert D_1 to a decimal number and obtain D_1'. (Refer to Table 6-1-4. "Hexadecimal Notation-Decimal Notation Conversion Table".)
8) Calculate D_3' using the following equations. (Equations 1 and 2 are for decimal notation calculation)

   When $D_2 \geq$ D0

   $D_3' = D_1' - 21$ .... Equation 1

   When $D_2 <$ D0

   $D_3' = D_1' - 22$ .... Equation 2
9) Convert D_3' to a hexadecimal number and obtain D_3.
10) Set D_3 to page: F, address: 47, and press the PAUSE button of the adjusting remote commander.
11) Set data: 09 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS display data (Note 1), and take the upper two digits as D_4 and the lower two as D_5.
13) Convert D_4 to a decimal number and obtain D_4'. (Refer to Table 6-1-4. "Hexadecimal Notation-Decimal Notation Conversion Table".)
14) Calculate D_6' using the following equations. (Equations 3 and 4 are for decimal notation calculation)

    When $D_5 \geq$ F0

    $D_6' = D_4' - 13$ .... Equation 3

    When $D_5 <$ F0

    $D_6' = D_4' - 14$ .... Equation 4
15) Convert D_6' to a hexadecimal number and obtain D_6.
16) Set D_6 to page: F, address: 48, and press the PAUSE button of the adjusting remote commander.

Note 1: The right four digits of the display data at the right bottom side of the EVF and monitor TV is the LIGHT LEVEL data. If the lower digits change severely and cannot be read, record it on a tape once, play it back by frame feeding, and obtain the average value.

Processing after Completing Adjustments
1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 0, address: 03.
5) Set data: 00 to page: 0, address: 01.

10. MAX GAIN Adjustment

Setting the minimum illumination.
If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3D
Specified Value	9B to A3

Switch setting:
1) STEADY SHOT switch (S103 on CF block) .... OFF

Adjusting method:
1) Set data: 01 to page: 0, address: 01.
2) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 01 to page: 0, address: 03.
4) Set data: 02 to page: 2, address: 40.
5) Set data: 40 to page: 2, address: 56.
6) Set data: 19 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
7) Change the data of page: F, address: 3D and adjust so that the DDS display data (Note 1) lies within the specified value.
8) Press the PAUSE button of the adjusting remote commander.

Note 1: The right two digits of the display data at the right bottom side of the EVF and monitor TV is the object data. If the data change severely and cannot be read, record it on a tape once, play it back by frame feeding, and obtain the avarage value.

Processing after Completing Adjustments
1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 2, address: 56.
5) Set data: 00 to page: 0, address: 03.
6) Set data: 00 to page: 0, address: 01.

11. Auto White Balance Standard Data Input

Subject	Clear chart (Color bar standard picture frame)
Adjustment Page	F
Adjustment Address	2A to 2D

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 2, address: 02 is 00. If not, turn the power of the unit OFF/ON.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Wait for 2 seconds.
3) Set data: 11 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Set data: 0D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander. (When the standard data is taken in, the data will be automatically input to addresses 2A to 2D of page F.)
5) Check that the data of page: 2, address: 02 is 01.
6) Perform "Auto White Balance Adjustment".

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 0, address: 01.

12. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the
Measuring Instrument	EVF or TV monitor
Adjustment Page	F
Adjustment Address	45, 46
Specified Value	R ratio: 2B40 to 2BC0 B ratio: 5E40 to 5EC0

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 3F to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 04 to page: 0, address: 03.
6) Change the data of page: F, address: 45, and adjust the average value of the DDS display data (the display data at the bottom right of the EVF or the TV monitor) to the R ratio specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Set data: 05 to page: 0, address: 03.
9) Change the data of page: F, address: 46, and adjust the average value of the DDS display data to the B ratio specified value.
10) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 03.
4) Set data: 00 to page: 0, address: 01.

13. White Balance Check

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 6-1-10. A to C

Checking method:

1) Check that the lens is not covered with either filter.
2) Set data: 0F to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the center of the white luminance point is within the circle shown in Fig. 6-1-10.A.
4) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 23 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown in Fig. 6-1-10. B.
8) Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) on the lens.
9) Check that the center of the white luminance point settles in the circle shown in Fig. 6-1-10. C.

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

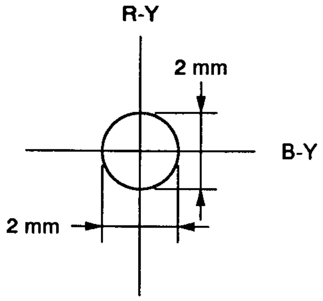


Fig. 6-1-10. A

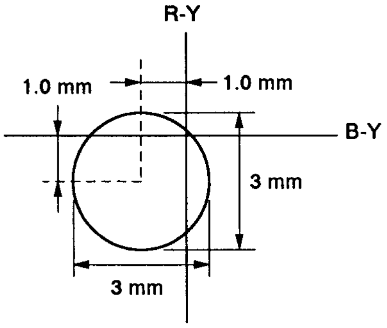


Fig. 6-1-10. B

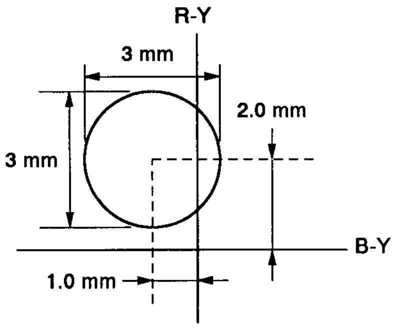


Fig. 6-1-10. C

14. Steady shot adjustment

- Perform the steady shot adjustment only when replacing the angular velocity sensor. When the microprocessor, circuit, etc. malfunctions, do not perform this adjustment but check operations only.
- Record the sensitivity label of the angular velocity sensor (repair part), including to which side of the board it was attached to, etc.
  If it has been attached incorrectly, the image will move up and down or to the left and right during steady shot operation. Be sure to take note of this.

Note on Angular Velocity Sensor

The sensor contains a high precision oscillator. Therefore handle it with extreme care as dropping it, etc. will disturb the balance of the oscillator and result in incorrect operations.

Switching Settings

1) Steady shot switch (CF block S103) .... ON
2) Digital zoom switch (Menu screen) .... OFF
3) When removing the cabinet (R), release the active prism lock. (Referring to the figure below, secure the lever with adhesive tape, etc.)

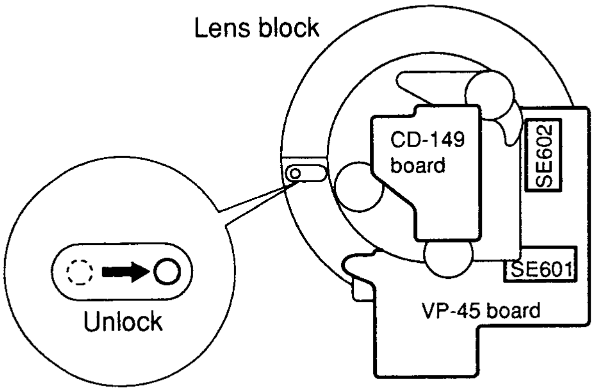
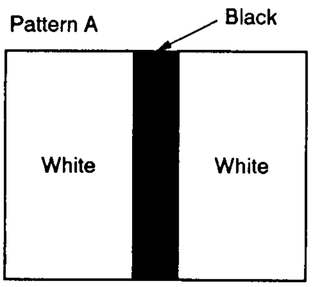


Fig. 6-1-11.

14-1. Steady Shot Adjustment (1)

Subject	Pattern A
Measuring point	Video output terminal
Measuring device	Oscilloscope
Adjustment page	F
Adjustment address	53



A4 size (297mm × 210mm)

Fig. 6-1-12.

Adjusting method:

1) Expose pattern A with the zoom TELE end.
   Note: Digital zoom (Menu screen) .... OFF
   Active prism lock
   (Refer to Fig. 6-1-11.) .... Release lock
2) Adjust the inclination of the camera so that the vertical black line comes to the center of the screen.
3) Set data: 01 to page: 0, address: 01.
4) Set data: 08 to page: E, address: 35, and press the PAUSE button of the adjusting remote commander.
5) Adjust to the falling edge of the waveform with vertical scale on the oscilloscope. (Oscilloscope is H period).
6) Set data: 07 to page: E, address: 35, and press the PAUSE button of the adjusting remote commander.
   At this time, measure the moving amount t1 (μsec) of the falling edge of the waveform.
7) Obtain D53′ using the following equation (decimal calculation).

$$D53' = \frac{5.81}{t1} \times \frac{1.01}{\text{SE602 sensor sensitivity}} \times 98$$

   Note: The SE602 sensor sensitivity of the VP-45 board is labeled only on the repair part.
8) Raise D53′ to a whole number, convert it to a hexadecimal digit and take this as D53. (Refer to Table 6-1-4. "Hexadecimal Digit-Decimal Digit Conversion Table".)
9) Set D53 to page F, address: 53, and press the PAUSE button of the adjusting remote commander.
10) Set data: 08 to page E, address: 35, and press the PAUSE button of the adjusting remote commander.

Procedure after adjustment

1) Set data: 00 to page: 0, address: 01.
2) Check that the steady shot operation is performed normally.

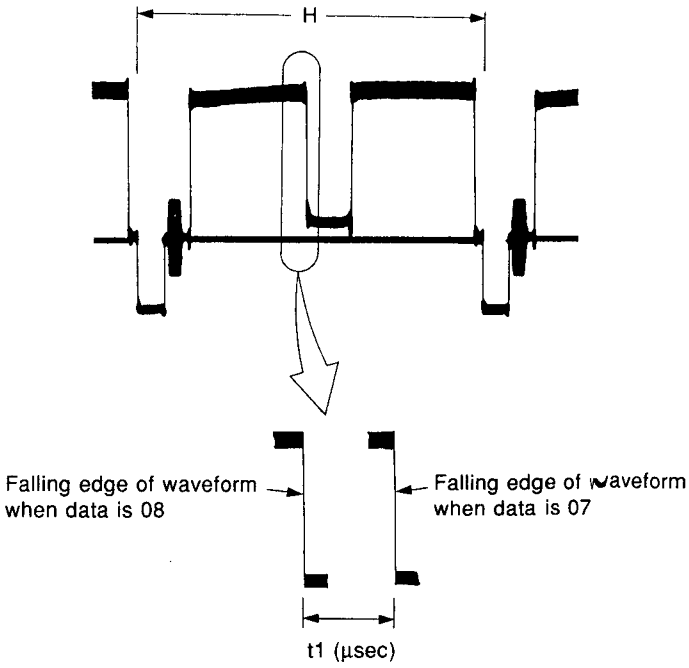
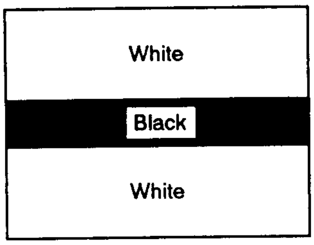

H
Falling edge of waveform when data is 08
Falling edge of waveform when data is 07
t1 (μsec)

Fig. 6-1-13.

14-2. Steady Shot Adjustment (2)

Subject	Pattern B
Measuring point	Video output terminal
Measuring device	Oscilloscope
Adjustment page	F
Adjustment address	52

Pattern B



A4 size (297mm × 210mm)

Fig. 6-1-14.

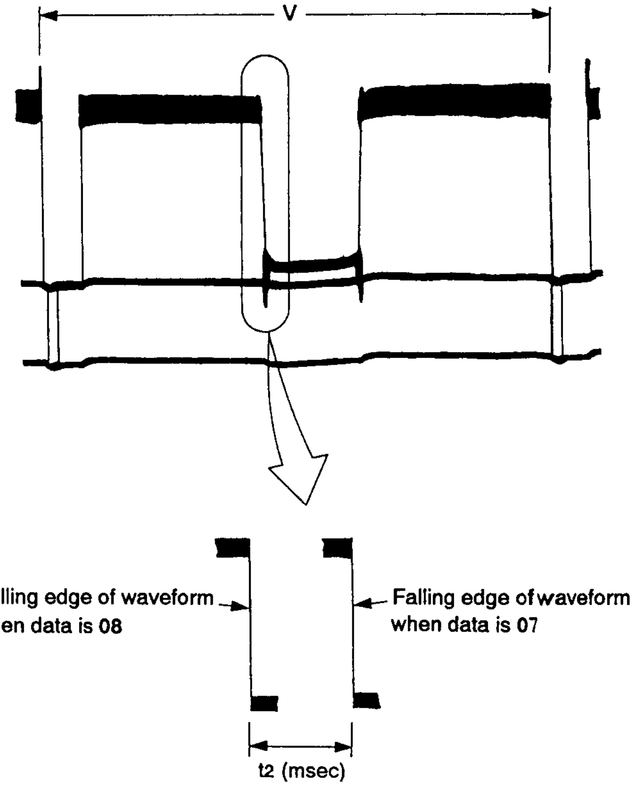

V
Falling edge of waveform when data is 08
Falling edge of waveform when data is 07
t2 (msec)

Fig. 6-1-15.

Adjusting method:

1) Expose pattern B with the zoom TELE end.
   Note: Digital zoom (Menu screen) .... OFF
   Active prism lock
   (Refer to Fig. 6-1-11.) .... Release lock
2) Adjust the inclination of the camera so that the horizontal black line comes to the center of the screen.
3) Set data: 01 to page: 0, address: 01.
4) Set data: 08 to page: E, address: 34, and press the PAUSE button of the adjusting remote commander.
5) Adjust the falling edge of the waveform with horizontal scale on the oscilloscope. (Oscilloscope is V period).
6) Set data: 07 to page: E, address: 34, and press the PAUSE button of the adjusting remote commander.
   At this time, measure the moving amount t2 (msec) of the falling edge of the waveform.
7) Obtain D52′ using the following equation (decimal calculation).

$$D_{52}' = \frac{2.52}{t2} \times \frac{1.00}{\text{SE601 sensor sensitivity}} \times 104$$

   Note: The SE601 sensor sensitivity of the VP-45 board is labeled only on the repair part.
8) Raise D52′ to a whole number, convert it to a hexadecimal digit and take this as D52. (Refer to Table 6-1-4. "Hexadecimal Digit-Decimal Digit Conversion Table".)
9) Set D52 to page F, address: 52, and press the PAUSE button of the adjusting remote commander.
10) Set data: 08 to page E, address: 34, and press the PAUSE button of the adjusting remote commander.

Procedure after adjustment

1) Set data: 00 to page: 0, address: 01.
2) Check that the steady shot operation is performed normally.

1-3. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS (COLOR EVF MODEL) (CCD-TR2300E/TR3300E)

Note 1: The backlight (fluorescent tube) is driven by a high voltage AC power supply.
Therefore, be careful not to touch the backlight holder as you will receive an electric shock.

Note 2: When replacing the LCD unit, ensure there will be no damages by static electricity.

Note 3: Set the VF PW-SAVE (Menu display) to "OFF" position, unless specified otherwise.

[Adjusting connector]

Some measuring points for adjusting the view-finder are concentrated at CPC of the FP-379 flexible board. Connect the measuring equipments via CPC-5 jig (J-6082-351-A). The following table lists the pin numbers and signal names of CPC.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	CAP FG	4	RF SWP
5	1/2 SWP	6	REC RF
7	REG GND	8	PB PCM RF
9	PB RF	10	CHASSIS GND
11	RF AGC IN	12	AFC FO
13	EZ I/O	14	RF AGC OUT
15	REC AFM	16	BPF MON
17	EVF UNREG (–)	18	VCO
19	EVF UNREG	20	EVF VG

Table 6-1-5.

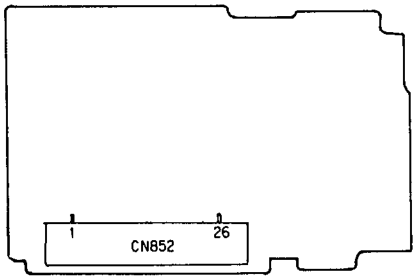
[Power Supply Voltage]

Adjust the power supply voltage for the battery pin so that Pin ⑲ (EVF UNREG) of CPC of the FP-379 flexible board becomes 6.0 ± 0.1 Vdc.

1. Power Supply Voltage Check (VF-95 board)

Mode	Record
Measuring Instrument	Digital voltmeter
13.5V check	
Measurement Point	Pin ⑪ of CN852
Specified Value	13.5 ± 0.3 Vdc
12.0V check	
Measurement Point	Pin ⑩ of CN852
Specified Value	12.0 ± 0.3 Vdc

VF-95 board (Component side)



2. EVR Initial Data Input

Mode	VTR STOP
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	40 to 51

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Select page D, and input the data in the following table.
   Note: To write in the nonvolatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time the data is set.
3) Set data: 00 to page: 0, address: 01.

Address	Data	Address	Data
40	3D	49	A4
41	04	4A	BC
42	20	4B	B4
43	20	4C	93
44	A2	4D	93
45	00	4E	78
46	94	4F	80
47	48	50	50
48	A4	51	40

3. VCO Adjustment (VF-96 board)

Set the VCO freerun frequency.
If deviated, the EVF screen will be blurred.

Mode	VTR stop
Signal	Arbitrary
Measurement Point	Pin ⑱ of CPC of FP-379 flexible board (VCO)
Measuring Instrument	Oscilloscope (DC range)
Adjustment Page	D
Adjustment Address	4F
Specified Value	A = 1.8 ± 0.1V

Adjusting method:

1) Check the GND level of the oscilloscope.
2) Set data: 01 to page: 0, address: 01.
3) Change the data of page: D, address: 4F, and set the PCO output voltage (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 0, address: 01.

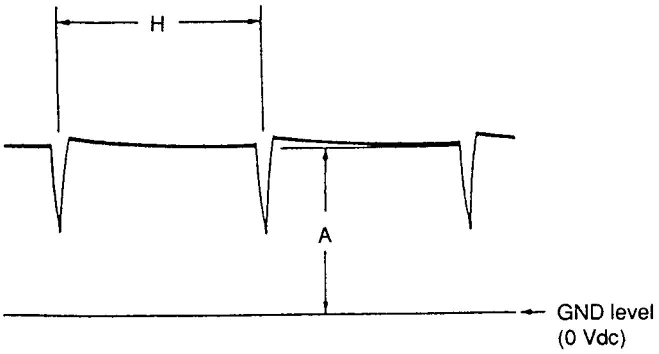


Fig. 6-1-16.

4. Bright Adjustment (VF-96 board)

Set the VIDEO signal level for driving the LCD to the appropriate value. If deviated, the LCD screen may become blackish or saturated (whitish).

Mode	VTR stop
Signal	Arbitrary
Measurement Point	Pin ⑳ of CPC of FP-379 flexible board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	48
Specified Value	A = 7.2 ± 0.15V

Connection:

1) Connect a 3.3 kΩ between Pin ⑳ and Pin ⑦ of CPC (REG GND).

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Input the following data to page: D, address: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	00	00	00	00	00	00

3) Change the data of page: D, address: 48, and set the voltage (A) between the reverse waveform pedestal and on-reverse waveform pedestal to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Input the following table in page: D, address: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	3D	04	20	A2	82	00

6) Set data: 00 to page: 0, address: 01.

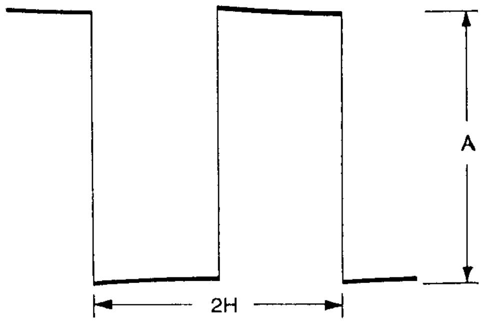


Fig. 6-1-17.

5. Contrast Adjustment (VF-96 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen may become inconsistent or blackish/saturated (whitish).

Mode	CAMERA mode
Signal	Arbitrary
Measurement Point	Pin ⑳ of CPC of FP-379 flexible board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4B
Specified Value	A = 1.40 ± 0.1V

Connection:

1) Connect a 3.3 kΩ between Pin ⑳ and Pin ⑦ of CPC (REG GND).

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Input the following data to page: D, address: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	00	27	00	00	00	00

3) Change the --data of page: D, address: 4B, and set the voltage (A) between white 50% and the pedestal to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Input the following table in page: D, address: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	3D	04	20	20	A2	00

6) Set data: 00 to page: 0, address: 01.

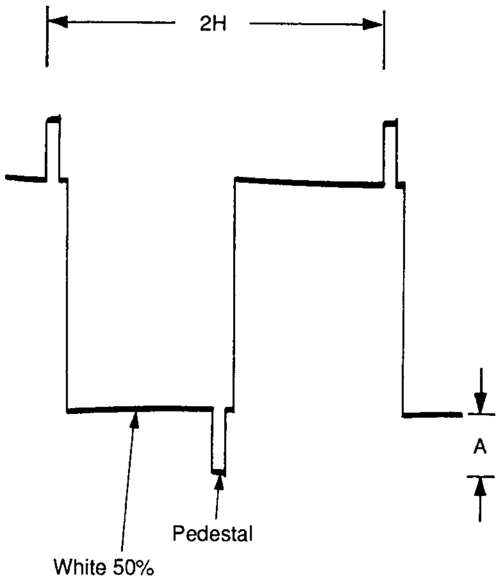


Fig. 6-1-18.

6. Backlight Consumption Current Adjustment (VF-95 board)

Set the back light luminance and color temperature.
If deviated, the image may becomes too dark or bright.

Mode	VTR stop
Signal	Arbitrary
Measurement Point	+ Probe: Pin ⑲ of CPC of FP-379 flexible board (EVF UNREG) – Probe: Pin ⑰ of CPC of FP-379 flexible board (EVF UNREG (–)
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	50
Specified Value	A = 30.0 ± 1.0 mVdc

Note: Adjust 30 seconds after running on the power supply.

Adjusting method:

1) Check that the voltage of Pin ⑲ (EVF UNREG) of CPC of the FP-379 flexible board is 6.0 ± 0.1 Vdc.
2) Change the data of page: D, address: 50, and set the potential difference (A) between EVF UNREG and EVF UNREG (–) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

7. White Balance Adjustment (VF-96 board)

Correct the white balance.

If deviated, the reproduction of the LCD screen may degenerate.

Mode	CAMERA mode
Signal	Arbitrary
Measurement Point	Check on the LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	49, 4A
Specified Value	The LCD display should be B/W.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set the data of page: D, addresses: 49 and 4A to the initial value.

   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	**Data**
49	A4
4A	BC

3) Input the following data to page: D, address: 40 to 45.

   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	00	27	00	00	00	00

4) Check that the LCD display is B/W. If colored, change the data of page: D, addresses: 49 and 4A so that the LCD display becomes B/W.

   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.
5) Input the following table in page: D, address: 40 to 45.

   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	3D	04	20	20	A2	00

6) Set data: 00 to page: 0, address: 01.

8. AUTO ON Level Adjustment (VF-95 board)

Adjust the power save sensor, and maintain at the level at which the backlight is AUTO ON.

Mode	VTR stop
Signal	Arbitrary
Measurement Point	Check that the backlight lights up
Measuring Instrument	
Adjustment Page	D
Adjustment Address	51
Specified Value	AUTO OFF distance Above 12 cm, less than 14 cm (Note 2) AUTO ON distance Above 9 cm, less than 11 cm (Note 2)

Note 1: Do not perform this adjustment in strong light or under lights.

Note 2: The specified value is the adjustment value during adjustments. The specified value during operation checks is as follows.
AUTO OFF distance: Above 9 cm, less than 15 cm
AUTO ON distance: Above 7 cm, less than 13 cm

Switch setting:

1) Set the "VF PW-SAVE" on the menu screen to "ON".

Adjustment preparation:

1) Prepare a 30 cm x 30 cm white paper, and place it 10 cm away from the EVF lens.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Input the following data to page: D, addresses: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	00	00	00	00	00	00

3) Increase the data of page: D, address 51, and turn on the backlight.
4) Decrease the data of page: D, address: 51 slowly, and turn off the backlight.
5) Press the PAUSE button of the remote commander.
6) Move the white paper away from the EVF lens and turn off the backlight. Then move it to the lens slowly, and check that the backlight lights up when the distance (AUTO ON distance) is the specified value.
7) Move the white paper near the EVF lens so that the backlight lights up, and then move it away, and check that the back light goes off when the distance (AUTO OFF distance) is the specified value.
8) Input the following data to page: D, address: 40 to 45.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

Address	40	41	42	43	44	45
Data	3D	04	20	20	A2	00

9) Set data: 00 to page: 0, address: 01.

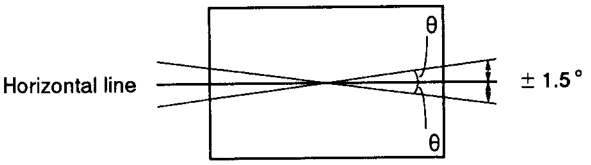
1-4. B/W ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS (CCD-TR2200E, CC 886)

1-4-1. Horizontal Slant Check

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-8CSE) Monoscope section
Specified Value	± 1.5°

Adjusting method:

1) Adjust RV904 (BRIGHT) so that the CRT can be seen easily and clearly.
2) Check that the difference between the horizontal line and the tilt of the black mask satisfies the specified value.



Specified value: The image should be within ± 1.5° of the horizontal line.

Fig. 6-1-19.

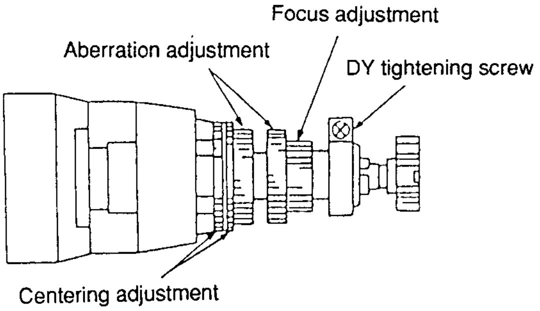


Fig. 6-1-20.

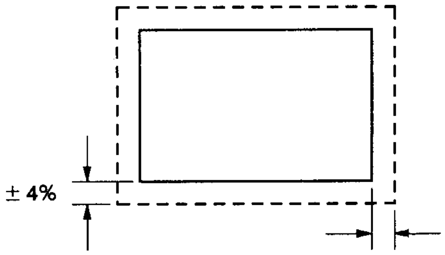
1-4-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-8CSE) Monoscope section
Specified Value	± 4%

Adjusting method:

1) Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform. (Refer to Fig. 6-1-20.)

   Note: As the centering position changes due to earth magnetism, rotate it 360° in the horizontal direction, and adjust with the center section of the modifying position.



Adjustment value: ± 4% ± 4%

Fig. 6-1-21.

1-4-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-8CSE) Monoscope section

Adjusting method:

1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 6-1-20.)

1-4-4. Aberration Adjustment

Mode	E-E
Signal	Dot pattern
Specified Value	$b_1 \leqq 2 \cdot a_1$ $b_2 \leqq 0.8 \cdot a_2$

Adjusting method:

1) Adjust the aberration adjustment ring so that the tracing of the dot satisfies the specified value.
2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

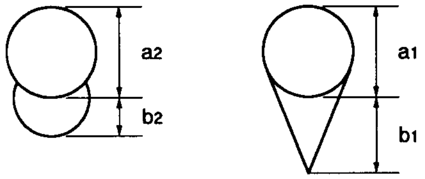


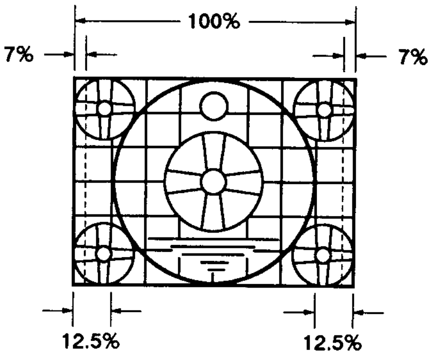
Fig. 6-1-22.

1-4-5. Horizontal Amplitude Adjustment (VF-104 board)

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-8CSE) Monoscope section
Adjusting Element	C909 (SOL901)
Specified Value	14 ± 6%

Adjusting method:

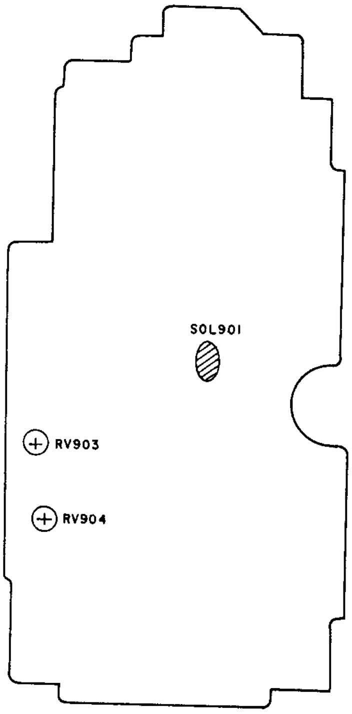
1) Rotate RV903, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.
2) Rotate RV904 so that the brightness is the normal level.
3) Solder or unsolder SOL901 pattern of the H size adjustment capacitor (C909) to "short" or "open", so that the horizontal direction over scan becomes 14 ± 6% (Left and right totals).



SOL901	Size H
Open	Small
Short	Big

Fig. 6-1-23.

VF-104 board (Component side)



1-4-6. Vertical Amplitude Adjustment (VF-104 board)

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-8CSE) Monoscope section
Adjusting Element	RV903
Specified Value	10 ± 3%

Adjusting method:

1) Adjust RV903 so that the vertical direction over scan becomes 10 ± 3% (Top and bottom totals).

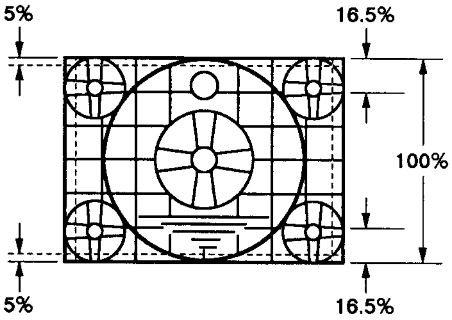


Fig. 6-1-24.

1-4-7. Brightness Adjustments (VF-104 board)

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-8CSE) Monoscope section
Specified Value	RV904

Adjusting method:

1) Rotate RV904, and adjust so that the bright/dark sections of the gray scale are displayed correctly. (The bright section should be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till the darkest section and the second darkest section of the gray scale cannot be differentiated.)

1-4-8. Horizontal Amplitude, Vertical Amplitude, Focus Check

"1-4-5. Horizontal Amplitude Adjustment" and "1-4-6. Vertical Amplitude Adjustment" should both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform [1-4-7. Brightness, Contrast Adjustments] again. Moreover, check the focus, and if it found to be vague, perform "1-4-3. Focus Adjustment" and "1-4-4. Aberration Adjustment".

6-2. MECHANICAL SECTION ADJUSTMENT

Mechanism Parts Adjustments

For details on the adjustments and checks of mechanical section and replacements of mechanism parts, refer to the separate volume- "8 mm Video Mechanism Adjustment Manual VII B Mechanism".

2-1. OPERATING WITHOUT A CASSETTE

1) Refer to "2. DISASSEMBLY" and supply the power with the cabinet removed. (So that the mechanical deck can be operated.)
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Set data: 01 to page: 0, address: 01.
6) Set data: 01 to page: F, address: 29, and press the PAUSE button of the adjusting remote commander.
7) Set data: 04 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.

By carrying out the above procedure, the unit can be operated without loading a cassette.

Be sure to carry out "Processing after Operations" after checking the operations.

Set the data of page: D, address: 10 to the following if the sensor ineffective mode, forced VTR power supply ON mode or forced camera power supply ON mode are to be used together.

Forced VTR power supply ON mode..........06
Forced camera power supply ON mode......05

[Processing after Operations]

1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: F, address: 29, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.
5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustments

1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: F, address: 29, and set data: 04 and press the PAUSE button of the adjusting remote commander.
   (Be sure to perform "Processing after operations" after completing adjustments.)
6) Connect the oscilloscope.
   Channel 1-Pin ⑨ of CPC of FP-379 flexible board
   External trigger-Pin 4 of CPC of FP-379 flexible board
   (Connect the oscilloscope via the multi CPC-5 jig (J-6082-351-A).)
7) Playback the alignment tape for tracking (WR5-1CP).
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit.
   If not flat, perform necessary adjustment according to the separate "8 mm Video Mechanical Adjustment Manual VII (B Mechanism)".
9) Perform "Processing after operations", after completing adjustments.

CPC of FP-379 flexible board

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	CAP FG	4	RF SWP
5	1/2 SWP	6	REC RF
7	REG GND	8	PB PCM RF
9	PB RF	10	CHASSIS GND
11	RF AGC IN	12	AFC FO
13	EZ I/O	14	RF AGC OUT
15	REC AFM	16	BPF MON
17	EVF UNREG (-)	18	VCO
19	EVF UNREG	20	EVF VG

[Processing after operations]

1) Connect the adjusting remote commander, and turn on the HOLD switch.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: 29, and set data: 00.
4) Press the PAUSE button of the adjusting remote commander.
5) Select page: 0, address: 01, and set data: 00.
6) Remove the power supply from the unit.

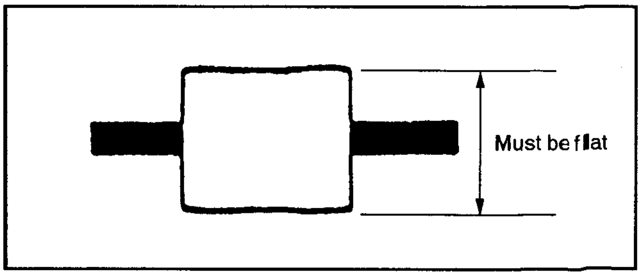


Fig. 6-2-1.

6-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6–58.

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

3-1-1. Equipments to be Used

1) TV monitor
2) Oscilloscope: 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuater
10) Regulated power supply
11) Alignment tape
    - For tracking adjustment (WR5-1CP)
      Part Code: 8-967-995-07
    - For video frequency characteristics adjustment (WR5-7CE) Part Code: 8-967-995-18
    - For checking Standard 8 mm mode operations
      For LP (WR5-4CL)
      Part Code: 8-967-995-56
      For SP (WR5-5CSP)
      Part Code: 8-967-995-47

      Note: The following alignment tapes can also be used.
      1) WR5-4CSP (8-967-995-46)
    - For checking Hi8 mode operations
      For SP (WR5-8CSE)
      Part Code: 8-967-995-48
      For LP (WR5-8CLE)
      Part Code: 8-967-995-57
    - For checking AFM stereo operations (WR5-9CS)
      Part Code: 8-967-995-28
      For checking BPF adjustment (WR5-11CS)
      Part Code: 8-967-995-76
12) Remote commander for adjustment (J-6082-053-B)
13) CPC-5 jig Part Code: J-6082-351-A
14) Power code Part Code: J-6082-223-A
15) AFM DEV jig (J-6082-312-A)
16) Extension cable (60P, 0.5 mm) (J-6082-356-A)
17) Extension cable (50P, 0.5 mm) (J-6082-355-A)

3-1-2. Precautions in Adjustment

1) The adjustments of this unit can be performed in the VTR mode (S video terminal input or video terminal input mode) or in the camera mode.
   When set to the VTR mode, set the power switch to "PLAYER or VTR" or set to the "forced VTR power supply ON mode" using the adjusting remote commander.
   To set to the camera mode, set the power switch to "Camera" or set to the "forced camera+VTR power supply ON mode" (Note 2) using the adjusting remote commander.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode" (Note 1) and "forced camera+VTR power supply ON mode". (Note 3)
2) The front panel block (MA-269 board, focus ring) need not be connected. To disconnect, disconnect the following connector.
   1. CN303 of MA-269 board (13P, 0.5 mm)
   2. 8P connector of the focus ring
3) The lens block (CD-149 board) and accessory shoe are not required for video section adjustments (excluding the battery end adjustment). During adjustments, disconnect the following four connectors.
   1. CN113 of VC-177 board (23P, 0.5 mm)
   2. CN112 of VC-177 board (16P, 0.5 mm)
   3. CN205 of VC-177 board (10P, 0.5 mm)
   4. CN603 of VP-45 board (13P, 0.5mm)
4) The viewfinder need not be connected. To disconnect, disconnect the following connector.
   1. CN111 of VC-177 board (20P, 0.5mm)
5) The cabinet (R) (CF block, LCD) need not be connected be set to the "forced VTR power supply ON mode" or "forced camera+VTR power supply ON mode" (excluding battery end adjustment). To disconnect, disconnect the following connector.
   1. CN502 of HI-40 board (24P, 0.5 mm)
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode" and "forced camera+VTR power supply ON mode". (Note 3)
6) When opening the HI-40 board, use the following extension cable.
   1. J-6082-356-A (60P, 0.5 mm)
7) When opening the MM-32 board, use the following extension cable. (Digital Memory model)
   1. J-6082-355-A (50P, 0.5 mm)

Note 1: Setting the "forced VTR power supply ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 02 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
   Hereafter, VTR operations cannot be performed even if the cabinet (R) is removed using the above steps.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode".

Note 2: Setting the "forced camera+VTR power supply ON mode" (camera mode)
1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
   Hereafter, VTR operations can be performed even if the cabinet (R) is removed using the above steps.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode".

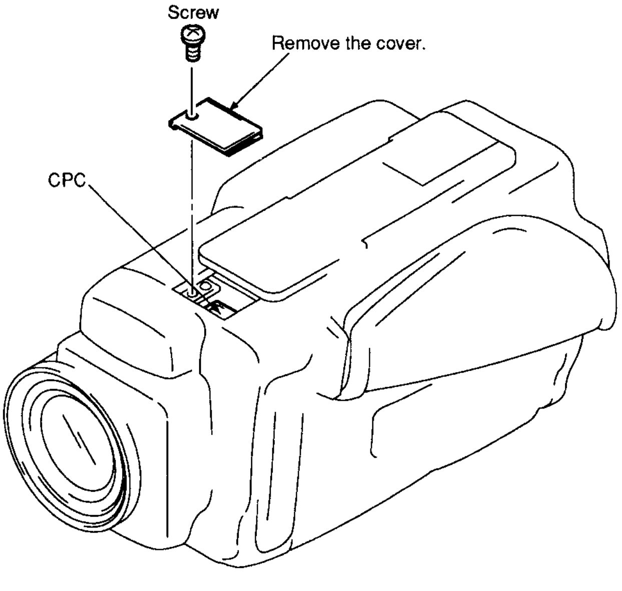
Note 3: Exiting the "forced power supply ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 01.

3-1-3. Connector for Adjustments

Some of the video section adjusting points are concentrated in the CPC of the FP-379 flexible board. Connect the measuring instruments via the CPC-5 jig (J-6082-351-A).

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	CAP FG	4	RF SWP
5	1/2 SWP	6	REC RF
7	REG GND	8	PB PCM RF
9	PB RF	10	CHASSIS GND
11	RF AGC IN	12	AFC FO
13	EZ I/O	14	RF AGC OUT
15	REC AFM	16	BPF MON
17	EVF UNREG (–)	18	VCO
19	EVF UNREG	20	EVF VG

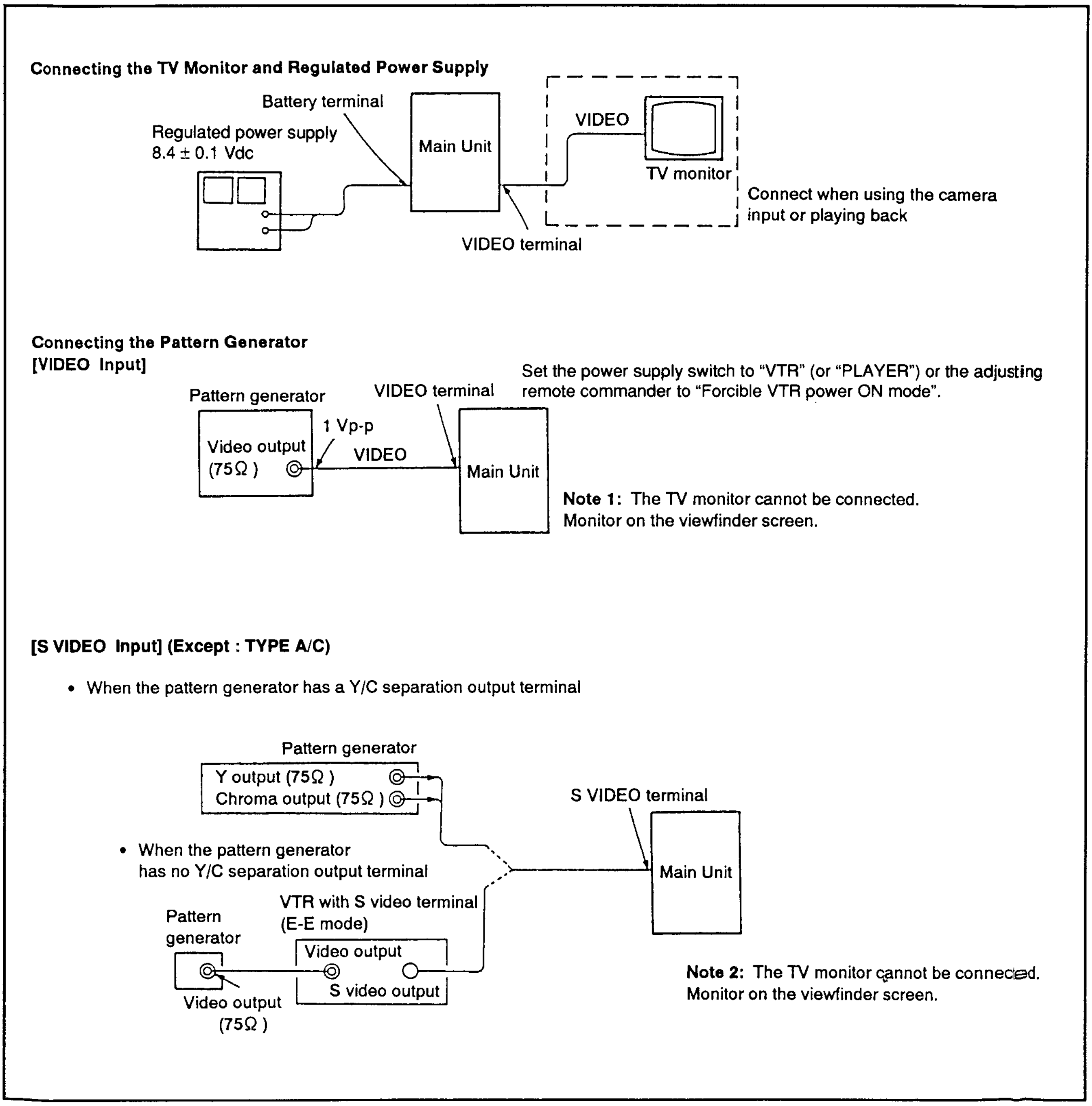
Table 6-3-1.



3-1-4. Connecting the Equipments

Connect the measuring instruments as shown in Fig. 6-3-1 according to the input terminal specifications (VIDEO input or S VIDEO input), and perform the adjustments.
The input terminal is specified in the ( ) in the signal column. Either input terminal can be used when there are no specifications.

Note 1: When adjustments are performed with the S video output terminal VTR as the signal source, the efficiencies of the unit may be affected by the VTR. It is recommended that a pattern generator with a Y/C separation output terminal be used as much as possible.



Connecting the TV Monitor and Regulated Power Supply

Connect when using the camera input or playing back

Connecting the Pattern Generator
[VIDEO Input]

Set the power supply switch to "VTR" (or "PLAYER") or the adjusting remote commander to "Forcible VTR power ON mode".

Note 1: The TV monitor cannot be connected. Monitor on the viewfinder screen.

[S VIDEO Input] (Except : TYPE A/C)

- When the pattern generator has a Y/C separation output terminal
- When the pattern generator has no Y/C separation output terminal

Note 2: The TV monitor cannot be connected. Monitor on the viewfinder screen.

Battery terminal
Regulated power supply
8.4 ± 0.1 Vdc
Main Unit
VIDEO
TV monitor
VIDEO terminal
Pattern generator
VIDEO terminal
1 Vp-p
Video output
(75Ω)
VIDEO
Main Unit
Pattern generator
Y output (75Ω)
Chroma output (75Ω)
S VIDEO terminal
Main Unit
VTR with S video terminal
(E-E mode)
Pattern
generator
Video output
S video output
Video output
(75Ω)

Fig. 6-3-1.

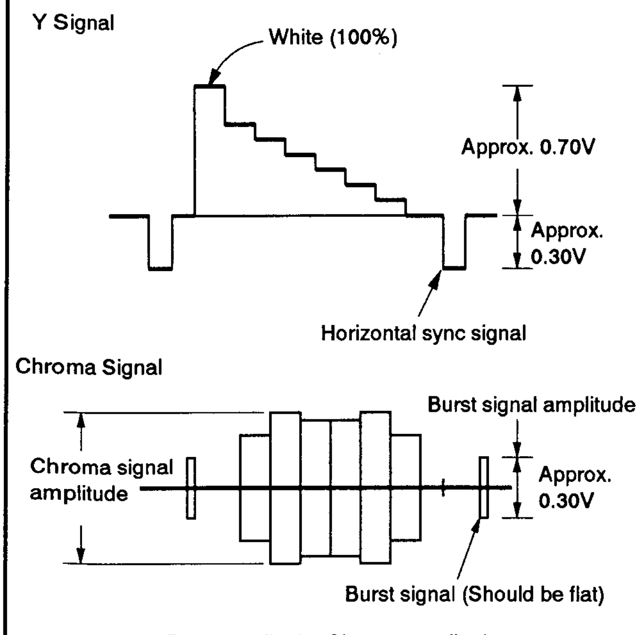
3-1-5. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

1. S VIDEO input
(Except AEP, UK model)
(Except TYPE A/C)

Connect the oscilloscope to the Y signal terminal of the S VIDEO terminal, and check that the sync signal of the Y signal is approximately 0.30V and that the amplitude of the video section is approximately 0.70V. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained.) Connect the oscilloscope to the chroma signal terminal of the S VIDEO terminal, and check that the burst signal amplitude of the chroma signal is approximately 0.30V and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30 : 0.66. The Y and chroma signals used in the adjustment are shown in Fig. 6-3-2.

Note: Be sure to check in the recording mode.


Y Signal
White (100%)
Approx. 0.70V
Approx. 0.30V
Horizontal sync signal
Chroma Signal
Burst signal amplitude
Chroma signal amplitude
Approx. 0.30V
Burst signal (Should be flat)

Burst amplitude: Chroma amplitude=0.30 : 0.66

Fig. 6-3-2. Color bar signal of pattern generator

2. VIDEO input

Connect the oscilloscope to the VIDEO terminal, and check that the sync signal amplitude of the video signal is approximately 0.30V, the amplitude of the video section is approximately 0.70V, the amplitude of the burst signal is approximately 0.30V and flat, and that the level ratio of the burst signal to the "red" signal is 0.30 : 0.66.

The video signal (color bar) used for adjusting the VTR section is shown in Fig. 6-3-3.

Note: Be sure to check in the record mode.

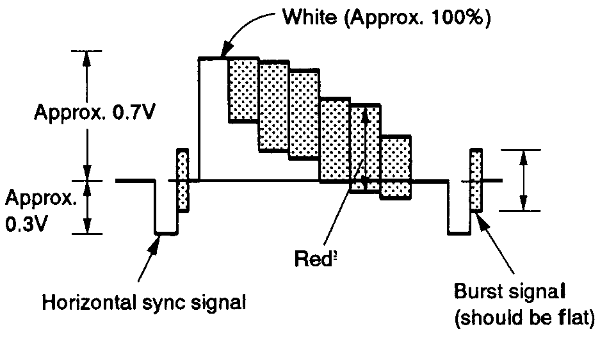

White (Approx. 100%)
Approx. 0.7V
Approx. 0.3V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 6-3-3. Color Bar Signal of Pattern Generator

3-1-6. How to Set the REC Mode in the Model without REC switch (AEP, UK model)

Note: The chrome signal cannot be input and recorded.

1. REC key forbidden accept mode cancel
    1. Connect the adjustment remote commander to the remote terminal.
    2. Turn on the power.
    3. Turn on the HOLD switch of the adjustment remote commander.
    4. Select the page: 0 address: 01, and set the data to 01.
    5. Select the page: D address: 12, and set the data to FE.
6. Press PAUSE button on the adjustment remote commander.

The REC key is accepted through the above procedure.

2. REC mode setting
    1. Turn off the HOLD switch of the adjusting remote commander.
    2. Press REC buttons of the adjusting remote commander.
    3. Perform "3. Procedure after completed the adjustment" after completing adjustment .

3. Procedure after completed the adjustment

   Be sure to return the mode to REC key forbideden accept mode after adjustment.
    1. Connect the adjustment remoter commander.
    2. Turn on the power.
    3. Turn on the HOLD switch of the adjustment remote commander.
    4. Select the page: 0 address: 01, and set the data to 01.
    5. Select the page: D address: 12, and set the data to FC.
    6. Press PAUSE button on the adjustment remote commander.
    7. Select the page: 0 address: 01, and set the data to 00.

3-1-7. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

Name	**Record -ing mode**	**Tape type**	**Tape speed**	**Usage**
Tracking WR5-1CP	Standard 8 mm	MP	SP	Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	Hi8	ME	LP	Frequency characteristics adjustment
Operation check WR5-5CSP	Standard 8 mm	MP	SP	Checking operations
Operation check WR5-8CSE	Hi8	ME	SP	
Operation check (LP mode) WR5-4CL	Standard 8 mm	MP	LP	
Operation check (LP mode) WR5-8CLE	Hi8	ME	LP	
AFM stereo Operation check WR5-9CS	Standard 8 mm	MP	SP	AFM stereo Checking operations
BPF adjustment WR5-11CS	Standard 8 mm	MP	SP	BPF adjustment

Tape type

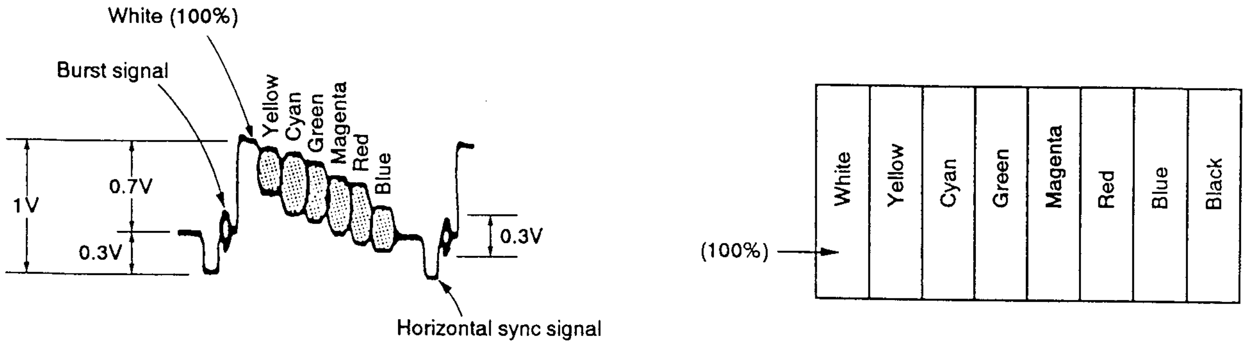
MP.... Particle type metal tape

ME ... Evaporated type metal tape

Table 6-3-2.

Fig. 6-3-4. shows the 75% color bar signals recorded on the alignment tape.

Note: Measure using the video output terminal (Terminated at 75 Ω)


White (100%)
Burst signal
Yellow
Cyan
Green
Magenta
Red
Blue
1V
0.7V
0.3V
0.3V
Horizontal sync signal
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black

Color bar signal waveform

Color bar pattern

Fig. 6-3-4. Color Bar Signals of the Alignment Tape

3-1-8. Input/Output Level and Impedance

1. AEP, UK model (TYPE A/C)

Video output	Phono jack, 1 Vp-p, 75Ω, unbalanced, sync negative
S video output	4-pin mini DIN Luminance signal: 1Vp-p, 75Ω, unbalanced, sync negative Chrominance signal: 0.3Vp-p 75Ω, unbalanced
Audio output	Phono jack, Input: –7.5 dBs, input impedance more than 47 kΩ Output: –7.5 dBs, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

2. Except AEP, UK model (TYPE B/D)

   Video input/output
      Phono jack, 1 Vp-p, 75Ω,
      unbalanced, sync negative
   S video input/output
      4-pin mini DIN
      Luminance signal:
         1Vp-p, 75Ω, unbalanced, sync negative
      Chrominance signal:
         0.3Vp-p 75Ω, unbalanced
   Audio input/output
      Phono jack,
      Input: –7.5 dBs, input impedance more than 47 kΩ
      Output: –7.5 dBs, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

3-1-9. Recording Mode (Standard 8/Hi8) switching

The record mode (Standard 8/Hi8) of this unit switches as shown in the following table. The playback mode (Standard 8/Hi8) switches automaticaly according to the recording mode of the tape played back.

Hi8 Switch (Menu Display)	Tape Used	Recording Mode
AUTO	ME	Hi8
	Hi8 MP	
	MP	Standard 8
OFF	ME	Standard 8
	Hi8 MP	
	MP	

3-1-10. Service Mode

Additional note on adjustment

Note: After the completion of the all adjustments, cancell the service mode by either of the following ways.

1) Unplug the main power supply and remove the lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) After data on page: D and F is restored, return data of the address: 01 on page: 0 to 00. And when data on page: 2 or page: 3 is changed, return the data to the original condition.

1. Test mode setting

Set/release each test mode. Set data: 01 to page: 0, address: 01 before setting the data of page D.

Page F	Address 29

Data	Function
00	Normal
01	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10

Data	Function
00	Normal
01	Camera power ON
02	VTR power ON
03	Camera+VTR power ON

* For page D and F, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (8.4 Vdc).

* Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander. And set data: 00 to page: 0, address: 01.

2. Emergency Memory Address

Page F	Address 10 to 1B

Address	Contents
10	1st EMG code
12	Upper: MSW code when the mechanism starts shifting the 1st time Lower: MSW code when the 1st emergency occurs
13	Lower: Target MSW code of the 1st emergency occurs
14	2nd EMG code
16	Upper: MSW code when the mechanism starts shifting the 2nd time Lower: MSW code when the 2nd emergency occurs
17	Lower: Target MSW code of the 2nd emergency occurs
18	Last EMG code
1A	Upper: MSW code when the mechanism starts shifting the last time Lower: MSW code when the last emergency occurs
1B	Lower: Target MSW code of the last emergency occurs

When there are no emergency, data 00 will be written in the above addresses (10 to 1B). When the first emergency occurs, the data corresponding to the emergency will be written in the address (10 to 13) for this first emergency. In the same way, when the second emergency occurs, the data corresponding to the emergency will be written in the address (14 to 17) for this second emergency.

The data corresponding to the emergency occurring the last will be written in the address (18 to 1B) for this last emergency.

Therefore the data of addresses 18 to 1B are renewed each time an emergency occurs.

Note 1: Be sure to rewrite the data of addresses 10to 1B to 00 after repairs/adjustments.

Note 2: When rewriting the data, be sure to press the PAUSE buttton of the remote commander after setting the data.

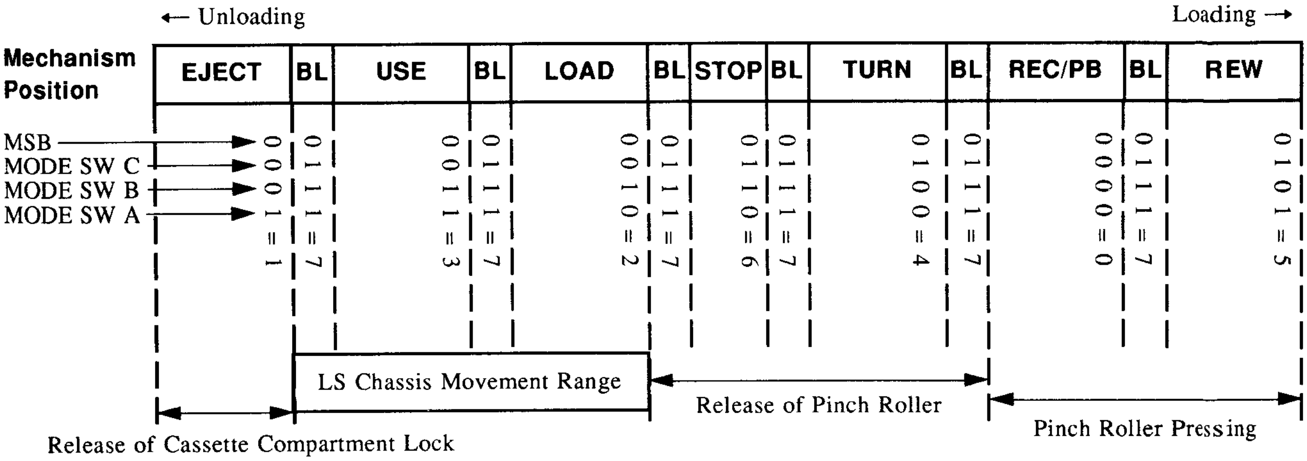
2-1. EMG CODE (Emergency Code)

The codes shown in the following table which correspond to errors that occur are recorded in addresses 10, 14, and 18.

Code	Type of Emergency
00	No error
10	Loading motor time-out during load
11	Loading motor time-out during unload
20	T reel emergency (reel slack) during unloading
21	S reel emergency (reel slack) during unloading
22	T reel emergency
23	S reel emergency
30	FG emergency at the start up of the capstan
31	FG emergency during the normal rotation of the capstan
40	FG emergency at the start up of the drum
41	PG emergency at the start up of the drum
42	FG emergency during the normal rotation of the drum
43	PG emergency during the normal rotation of the drum
44	Phase emergency during the normal rotation of the drum

2-2. MSW Codes

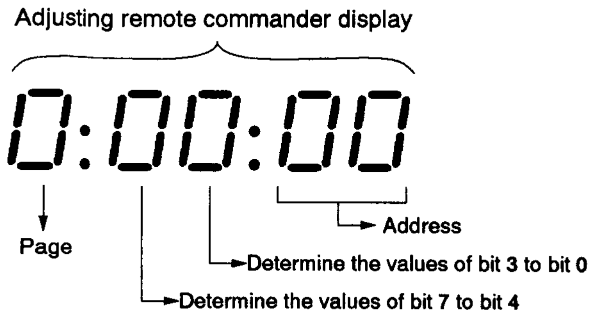
- The lower parts of the data of addresses 12, 16 and 1A represent the MSW codes (mode switch, mechanism position) when errors occurs.
- The upper parts of the data of addresses 12, 16 and 1A represent, when the mechanism position is to be moved, the MSW codes at the start of movement (when moving the loading motor).
- The lower parts of the data of addresses 13, 17 and 1B represent the MSW codes of the desired movement when the mechanism position is to be moved.


← Unloading
Loading →
Mechanism Position
EJECT
BL
USE
BL
LOAD
BL
STOP
BL
TURN
BL
REC/PB
BL
REW
MSB
MODE SW C
MODE SW B
MODE SW A
0001=1
0111=7
0011=3
0111=7
0010=2
0111=7
0110=6
0111=7
0100=4
0111=7
0000=0
0111=7
0101=5
LS Chassis Movement Range
Release of Pinch Roller
Pinch Roller Pressing
Release of Cassette Compartment Lock

Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
RECP/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW is carried at this position. The mechanism will not move any further in the loading direction.

3. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".


Adjusting remote commander display
0:00:00
Page
Address
Determine the values of bit 3 to bit 0
Determine the values of bit 7 to bit 4

	Remote commander display	Bit value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (c)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ→	E (E)	1	1	1	0
	F (F)	1	1	1	1

(Example) If the remote commander display data is "8E", bit values from bit7 to bit4 can be discriminated from column Ⓐ, and those from bit3 to bit0 from column Ⓑ.

4. Input/output selection check

Page 3	Address 16

Bit	Function	When bit value = 1	When bit value = 0
0	Not S video terminal input		S video terminal input
1	Not video terminal input		Video terminal input
2	Audio terminal monaural	Monaural	
3	Easy connector monaural input	Monaural	
4			
5			
6			
7			

Using method:

1) Select address: 16 of page: 3.
2) By discriminating the bit value of the display data, the state of the input/output selection can be discriminated.

5. Condensation, head clogging check

Page 3	Address 17

Bit	Function	When bit value = 1	When bit value = 0
0	Condensation state (1 hour preservation)	Condensation	
1	Head clogging	Head clogging	
2			
3			
4			
5			
6			
7			

Using method:
1) Select address: 17 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

6. VTR state check (1)

Page 3	Address 18

Bit	Function	When bit value = 1	When bit value = 0
0	Video/audio circuit PB mode	PB mode	REC/E-E mode
1			
2			
3			
4	Head clog detection when REC	Head clog	
5			
6	Recorded tape playback	Playback	
7	Capstan rotation	Rotation	

Using method:
1) Select address: 18 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

7. VTR state check (2)

Page 3	Address 19

Bit	Function	When bit value = 1	When bit value = 0
0	Eject state	Eject state	
1	Cassette insertion state	Cassette in	
2	Cassette accidental erasure prevention	Accidental erasure prevention state	
3	Tape type	ME	MP
4	Tape type	Hi8 MP	NORMAL MP, ME
5	Crystal variable speed playback	Variable speed playback	
6	Variable speed playback mode	Variable speed playback mode	
7	DRUM	DRUM rotation	Stop

Using method:
1) Select address: 19 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

8. VTR state check (3)

Page 3	Address 1A

Bit	Function	When bit value = 1	When bit value = 0
0	Playback tape recording mode	Hi8	Standard 8
1			
2	Audio mode	Monaural	Stereo
3			
4			
5			
6			
7			

Using method:
1) Select address: 1A of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

9. Record of Use Check

Page 3	Address E0 to E9

Address	Function		Remarks
E0	Service status		For checking reset. Normal = “FF”. Reset: “00”
E1	Drum rotation counted time (BCD code)	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
E2		Hour (L)	
E3		Minute	10th place digit and 1st place digit of counted time (decimal)
E4	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next
E5		Month	
E6		Day	
E7	Final condensation occurrence date (BCD code)	Year	
E8		Month	
E9		Day	

Using method:
1) The record of use data is displayed at addresses: E0 to E9 of page 3.

Note: This data will be erased when the coin lithium battery is removed (reset).

3-1-11. Page D Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page D Data Initialization" and "Page D Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Note 3: ( ): AEP, UK model (YTPE A/C)
[ ]: E, Australian, Hong Kong model (TYPE B/D)
< >: CC 886

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
10	00	00	00	←
11	(06)[07]	[07]	06<86>	←
12	(FC)[FE]	[FE]	(FC)	←
13	AE	8E	01	←
14	17	17	17	←
15	F3	F3	F3	←
16	10	10	10	←
17	0C	0C	0C	←
18	00	00	00	←
19	1E	1E	1E	←
1A	DF	DF	DF	←
1B	D7	D5	D5	←
1C	19	19	19	←
1D	00	00	00	
1E	00	00	00	
1F	10	10	10	←
20	00	00	00	
21	(42)[84]	[84]	(42)	←
22	33	23	22	←
23	00	00	00<FF>	←
24	12	12	12	
25	50	50	50	
26	04	04	04	
27	EA	F9	EA	
28	80	80	80	
29	85	85	85	
2A	91	91	91	
2B	A0	A0	A0	
2C	A8	A8	A8	
2D	05	05	05	←
2E	03	03	03	←
2F	01	01	01	←
30	05	05	05	←
31	73	73	73	←

Table 6-3-3 (1).

Address	Adjustment Data			
	Initial Value			Memo Column
	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886	
32	24	24	24	←
33	CC	CC	CC	←
34	07	07	07	←
35	80	80	80	
36	C9	C9	C9	←
37	02	02	02	←
38	02	02	02	←
39	04	04	04	←
3A	0A	0A	0A	
3B	32	32	32	
3C	08	08	08	←
3D	80	80	80	←
3E	00	00	00	
3F	03	03	03	←
40	3D	3D		
41	04	04		
42	20	20		
43	20	20		
44	A2	A2		
45	00	00		
46	94	94		
47	48	48		
48	A4	A4		
49	A4	A4		
4A	BC	BC		
4B	B4	B4		
4C	93	93		
4D	93	93		
4E	78	78		
4F	80	80		
50	50	50		
51	40	40		
52 to 63				

Table 6-3-3 (2).

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Initialization of E, F Page Data

If the E, F page data is erased due to some reason, perform "Initialization of E, F Page Data", "Modification of F Page Data", and "Modification of E Page Data" of camera system adjustments.

2. Initialization of D Page Data

Note: If the D page data has been initialized, perform "Color Electronic Viewfinder System Adjustment" (Color EVF model) and "Battery Down Adjustment" again.

Adjusting page	D
Adjusting address	10 to 63

Initialization method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 2D to page: 3, address: 00.
3) Set data: 2D to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the data of page: 3, address: 02 is 01.
5) Set data: 29 to page: 3, address: 00.
6) Set data: 29 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
7) Set data: 00 to page: 0, address: 01.
8) After performing "Modification of D Page Data", perform "Color Electronic Viewfinder System Adjustment" (Color EVF model) and "Battery Down Adjustment" again.

3. Modification of D Page Data

If the D page data has been initialized, change the data as shown in the following table by manual input.

Note 1: Before changing the data, set data: 01 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01, and perform "Color Electronic Viewfinder System Adjustment" (Color EVF model) and "Battery Down Adjustment".

( ): AEP, UK model (TYPE A/C)
[ ]: E, Australian, Hong Kong model (TYPE B/D)
< >: CC 886

Address	CCD-TR3300E	CCD-TR2300E	CCD-TR2200E, CC 886
10	00	00	00
11	(06)[07]	07	06<86>
12	(FC)[FE]	FE	FC
13	AE	8E	01
14	17	17	17
15	F3	F3	F3
16	10	10	10
17	0C	0C	0C
18	00	00	00
19	1E	1E	1E
1A	DF	DF	DF
1B	D7	D5	D5
1C	19	19	19
1F	10	10	10
21	(42)[84]	84	42
22	33	23	22
23	00	00	00<FF>
24	12	12	12
25	50	50	50
26	04	04	04
27	EA	F9	EA
2D	05	05	05
2E	03	03	03
2F	01	01	01
30	05	05	05
31	73	73	73
32	24	24	24
33	CC	CC	CC
34	07	07	07
36	C9	C9	C9
37	02	02	02
38	02	02	02
39	04	04	04
3A	0A	0A	0A
3B	32	32	32
3C	08	08	08
3D	80	80	80

4. Battery End Adjustment (VC-177 board)

Set the battery end voltage.
If the voltage is incorrect, the life of the battery will shorten.
The image at the battery end will also be rough.

Mode	Camera record
Signal	Arbitrary
Measurement Point	LCD display of the adjusting remote control unit
Measuring Instrument	
Adjustment Page	D
Specified Value	28 to 2C, 35

Note: The lens block and cabinet (R) must be connected.

Switch setting
1) AUTO FOCUS .... OFF
2) VF PW-SAVE (Menu display)
   (CCD-TR2300E/TR3300E) .... OFF

Connection:
1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 6-3-5.

Adjusting method:
1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.1 ± 0.1 Vdc.
2) Load a cassette, and set to the camera recording mode.
3) Set data: 01 to page: 0, address: 01.
4) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is 5.40 ± 0.01 Vdc.
5) Set data: 03 to page: 0, address: FF.
6) Set data: 01 to page: 2, address: 01.
7) Select page: 3, address: 31, read the adjusting remote commander display data, and this data is named Dref.
8) Set data: 00 to page: 2, address: 01.
9) Set data: 00 to page: 0, address: FF.
10) Set data Dref to page: D, address: 28, and press the PAUSE button of the adjusting remote commander.
11) Set data Dref to page: D, address: 35, and press the PAUSE button of the adjusting remote commander.
12) Convert Dref to decimal notation, and obtain Dref′. (Refer to Table 6-1-4. "Hexadecimal notation – decimal notation conversion table")
13) Calculate D29′, D2A′, D2B′ and D2C′ using following equations (decimal notation calculation).
    D29′ = Dref′+5
    D2A′ = Dref′+32
    D2B′ = Dref′+53
    D2C′ = Dref′+64
14) Convert D29′, D2A′, D2B′ and D2C′ to hexadecimal notation, and obtain D29, D2A, D2B and D2C.
15) Set data: D29 to page: D, address: 29, and press the PAUSE button of the adjusting remote commander.
16) Set data: D2A to page: D, address: 2A, and press the PAUSE button.
17) Set data: D2B to page: D, address: 2B, and press the PAUSE button.
18) Set data: D2C to page: D, address: 2C, and press the PAUSE button.
19) Set data: 00 to page: 0, address: 01.

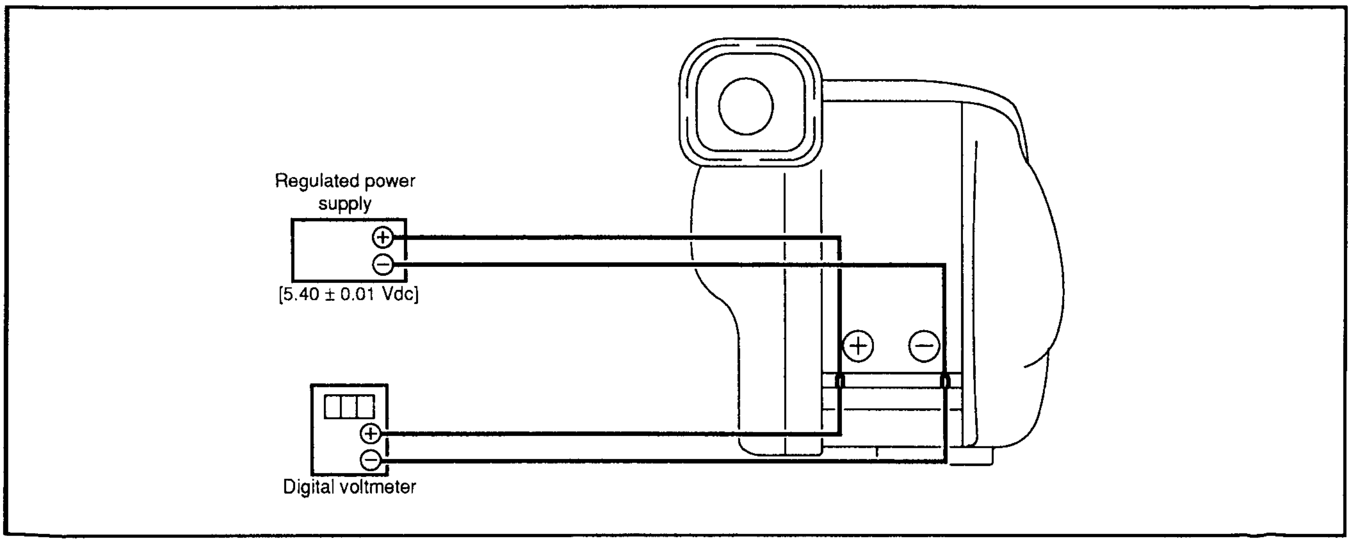


Fig. 6-3-5.

3-3. SERVO SYSTEM ADJUSTMENTS

1. CAP FG Offset Adjustment (VC-177 board)

Improve the capstan servo characteristic. If it is not correct, jitters will increase.

Mode	VTR record (SP mode)
Signal	Arbitrary
Measurement Point	Pin ③ of CPC (CAP FG) on FP-379 flexible board
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	5C
Specified Value	Duty = 50 ± 1.5%

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 81 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the data of page: 2, address: 02 is 01.
4) Check that Duty of CAP FG signal satisfies the specified value. If not, set data: 00 to page: 2, address: 01, and press the PAUSE button, and then, repeat steps 2) to 4).
5) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

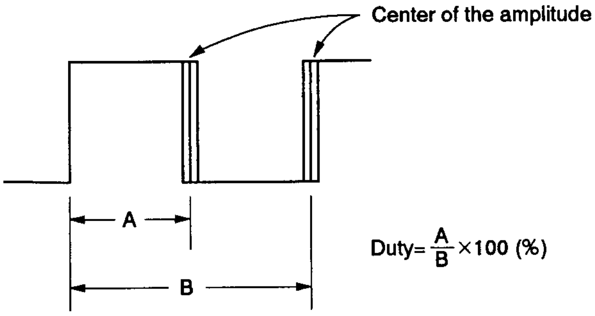


Fig. 6-3-6.

2. Switching Position Adjustment (VC-177 board)

If deviated in this case causes switching noise or jitter on the played back screen.

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1CP)
Measurement Point	CH1: Pin ④ of CPC (RF SWP) on FP-379 flexible board CH2: Pin ⑨ of CPC (PB RF) on FP-379 flexible board
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	36, 37
Specified Value	t1 = 0 ± 10 µsec

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: F, address: 37 and minimize "t1", and press the PAUSE button of the adjusting remote commander. (Coarse adjustment)
3) Change the data of page: F, address: 36, and adjust so that the switching position (t1) becomes the specified value. (Fine adjustment)
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 0, address: 01.

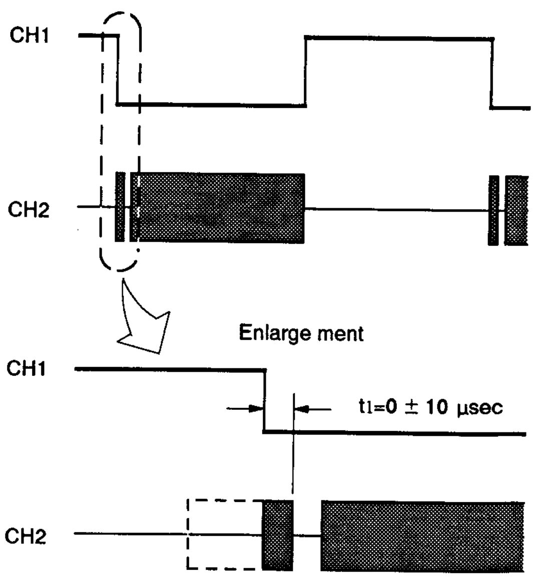


Fig. 6-3-7.

3-4. VIDEO SYSTEM ADJUSTMENTS

Video system adjustments must be performed in the following order.

[Adjusting Order]

1. 28 MHz origin oscillation adjustment
2. Filter f0 adjustment
3. Y OUT level adjustment
4. C OUT level adjustment
5. RP filter f0 adjustment
6. AFC f0 adjustment
7. REC Y current adjustment
8. REC C current adjustment

1. 28 MHz Origin Oscillation Adjustment (VC-177 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Pin ⑫ of IC202
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	3A
Specified Value	f = 14187500 ± 70 Hz

Note: If the x2 frequency is displayed, insert a 1 kΩ resistor between the measuring point and probe.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: F, address: 3A, and set the oscillation frequency to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

2. Filter f0 Adjustment (VC-177 board)

Minimize the chroma signal residual components during composite video signal input.

Mode	VTR stop
Signal	Color bar (Video input)
Measurement Point	Pin ⑬ of CPC (EZ I/O) on FP-379 flexible board
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	66
Specified Value	Minimum residual chroma signal components

Note: Do not insert a plug into the S video terminal.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 33 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 66, and minimize the residual chroma signal components (A).
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

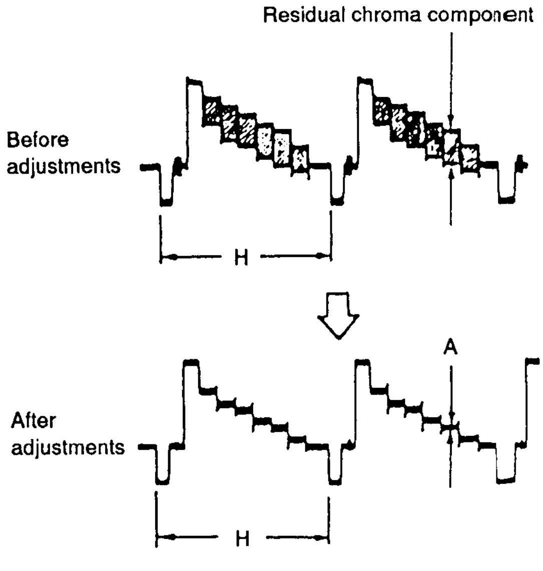


Fig. 6-3-8.

3. Y OUT Level Adjustment (VC-177 board)

Set the Y signal output level.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Y signal terminal of S VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	62
Specified Value	A = 300 ± 5 mV

Note: Insert the plug into the S video terminal.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 62, and set the SYNC level (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

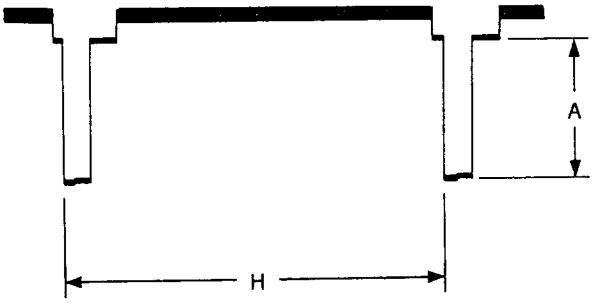


Fig. 6-3-9.

4. C OUT Level Adjustment (VC-177 board)

Set the chroma signal output level.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Chroma signal terminal of S VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64
Specified Value	A = 300 ± 5 mV

Note: Insert the plug into the S video terminal.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 64, and set the burst level (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

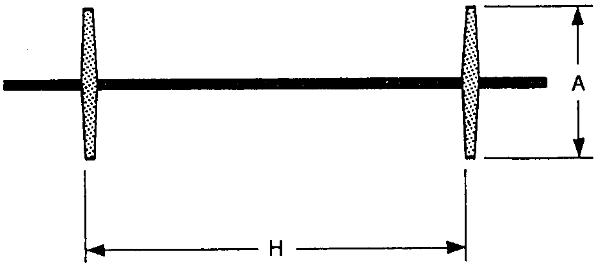


Fig. 6-3-10.

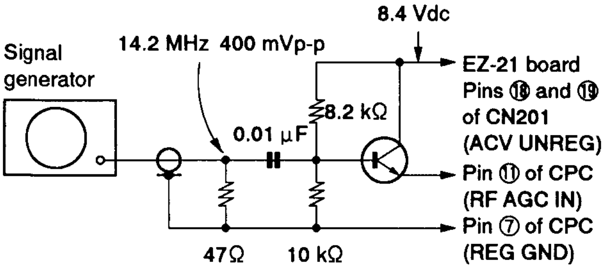
5. RP Filter f0 Adjustment (VC-177 board)

Adjust the LPF of the playback RF amplifier.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Pin ⑭ of CPC of FP-379 flexible board (RF AGC OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	67
Specified Value	A = Below 10 mVp-p

Connection:

1) Input a 14.2 MHz, 400 mVp-p CW signal to Pin ⑪ of CPC of the FP-379 flexible board (RF AGC IN).



Transistor: General NPN transistor (2SC403, etc.)
47 Ω resistor: 1-249-401-11
8.2 kΩ resistor: 1-249-428-11
10 kΩ resistor: 1-249-429-11
0.01 µF capacitor: 1-101-004-00

Fig. 6-3-11.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 35 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 67, and minimize the 14.2 MHz signal level (A).
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

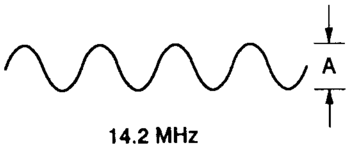


Fig. 6-3-12.

6. AFC f0 Adjustment (VC-177 board)

Adjust the pull-in range of the A/D converted clock generator during playback.

Mode	VTR stop
Signal	Color bar (Video input)
Measurement Point	Pin ⑫ of CPC of FP-379 flexible board (AFC f0)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	63
Specified Value	A = 2.2 ± 0.05 Vdc

Note: Do not insert the plug in the S video terminal.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 31 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 63, and set the DC voltage (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

7. REC Y Current Adjustment (VC-177 Board)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑥ of CPC of FP-379 flexible board (REC RF)
Measuring Instrument	Oscilloscope (20 MHz band limitation: OFF)
Adjustment Page	F
Adjustment Address	70, 71, 72, 73
Specified Value	A = 225 ± 5 mV

Adjusting method:

1) Insert a Hi8 ME tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Note down the data of page: F, address: 76, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Note down the data of page: F, address: 77, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Input data: 00 to page: F, addresses: 70, 72, 73.

   Note: After setting the data, be sure to press the PAUSE button of the adjusting remote commander.
6) Change the data of page: F, address: 71, and set the REC Y signal level (A) to the specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Read the data (D71) of page: F, address: 71.
9) Input the read data (D71) to page: F, addresses: 70, 72, and 73.

   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
10) After setting the data noted down at step 3) for page: F, address: 76, press the PAUSE button of the adjusting remote commander.
11) After setting the data noted down at step 4) for page: F, address: 77, press the PAUSE button of the adjusting remote commander.
12) Set data: 00 to page: 0, address: 01.

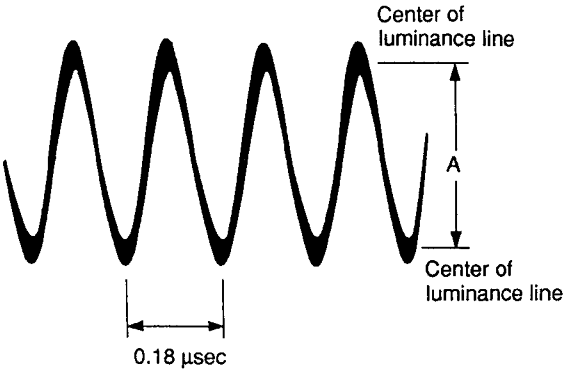


Fig. 6-3-13.

8. REC C Current Adjustment (VC-177 Board)

Adjust REC chroma signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	CH1: Pin ⑥ of CPC of FP-379 flexible board (REC RF) CH2: Pin ④ of CPC of FP-379 flexible board (RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	76 to 7D
Specified Value	A = 44.0 ± 1.6 mV

Connection:

1) Short-circuit R1157 (82Ω, near Pin ㉒ of IC102) using a jumper wire.
2) Short-circuit R1018 (10 kΩ) using a jumper wire.
3) Short-circuit R1113 (6.8 kΩ) using a jumper wire.

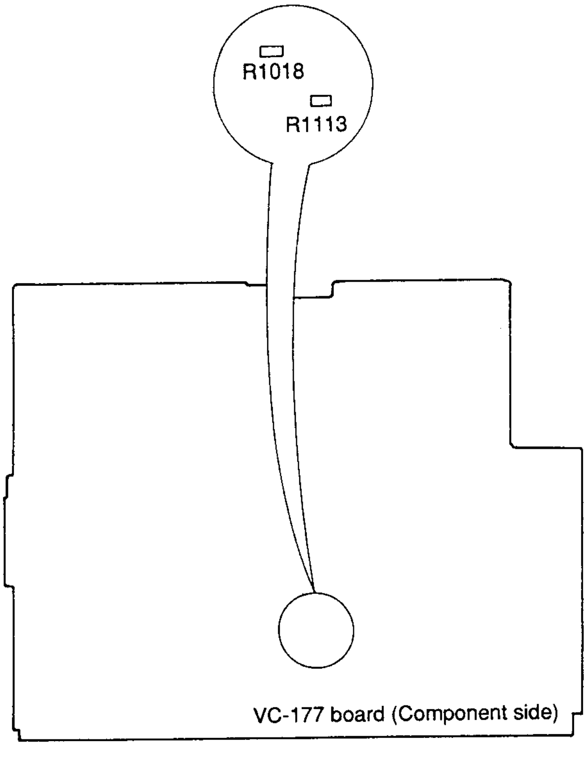


Fig. 6-3-14.

Adjusting method:

1) Insert a normal Hi8 ME tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 30 to page: 2, address: 61.
4) Note down the data of page: F and address: 70, then set data: 00 and press the PAUSE button of the adjusting remote commander.
5) Note down the data of page: F and addresses: 71, 72, 73, then input data: 00 to each address.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
6) Change the data of page: F, address: 77, and set the REC chroma signal level (A) to the specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Read data (D77) of page: F, address: 77.
9) Input the read data (D77) to addresses: 76, 78, 79 of page: F.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
10) Convert D77 to a decimal number, to obtain D77′. (Refer to Table 6-1-4. Hexadecimal-Decimal Conversion Table).
11) Calculate the adjustment data (decimal) from the following equation (decimal calculation), convert it to a hexadecimal number, and input to each adjustment address.
    Address: 7A D7A′ = D77′ − 54
    Address: 7B D7B′ = D77′ − 54
    Address: 7C D7C′ = D77′ − 54
    Address: 7D D7D′ = D77′ − 54
    Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
12) After setting the data noted down at step 4) for page: F, address: 70, press the PAUSE button of the adjusting remote commander.
13) After setting the data noted down at step 5) for page: F, address: 71, 72, 73, press the PAUSE button of the adjusting remote commander.
    Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
14) Set data: 00 to page: 2, address: 61.
15) Set data: 00 to page: 0, address: 01.

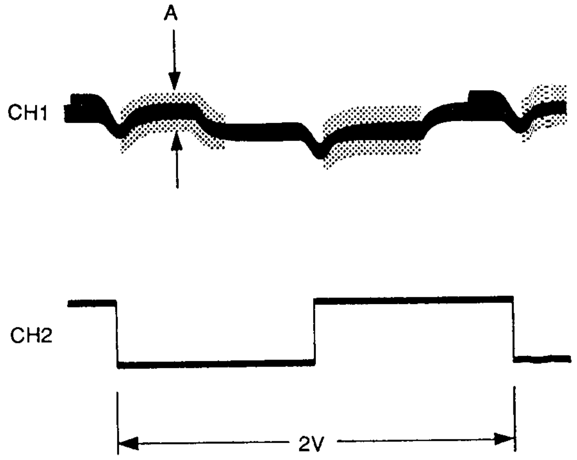


Fig. 6-3-15.

3-5. AUDIO SYSTEM ADJUSTMENT

- Perform the adjustment using the color bar signal as a video signal input for VIDEO terminal.
- The items to be adjusted for the R channel will be indicated within the [ ], in regard to the adjusting items to be adjusted for both L and R channels.
- Set the Hi-Fi sound switch in the menu display to "STEREO" position unless specified otherwise.

Note:

1) When inputting the audio signal, input the same signal to both the L and R channels, unless specified otherwise.
2) Be sure to insert the plug (Shorting plug or dummy plug, etc) into the AUDIO terminal (Right). If the plug is not inserted, the monaural mode well be set, and correct adjustments can not be carried out.
   [Monaural mode]
   During recording .... REC AFM RF 1.7MHz carriear will not be output.
   During playback .... The L+R signal will be output from the AUDIO terminal (Left).

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 6-3-16, and perform adjustments at the power switch [PLAYER or VTR] position.

[Adjustment Procedure]

1) 1.5 MHz deviation adjustment
2) 1.7 MHz deviation adjustment
3) BPF adjustment

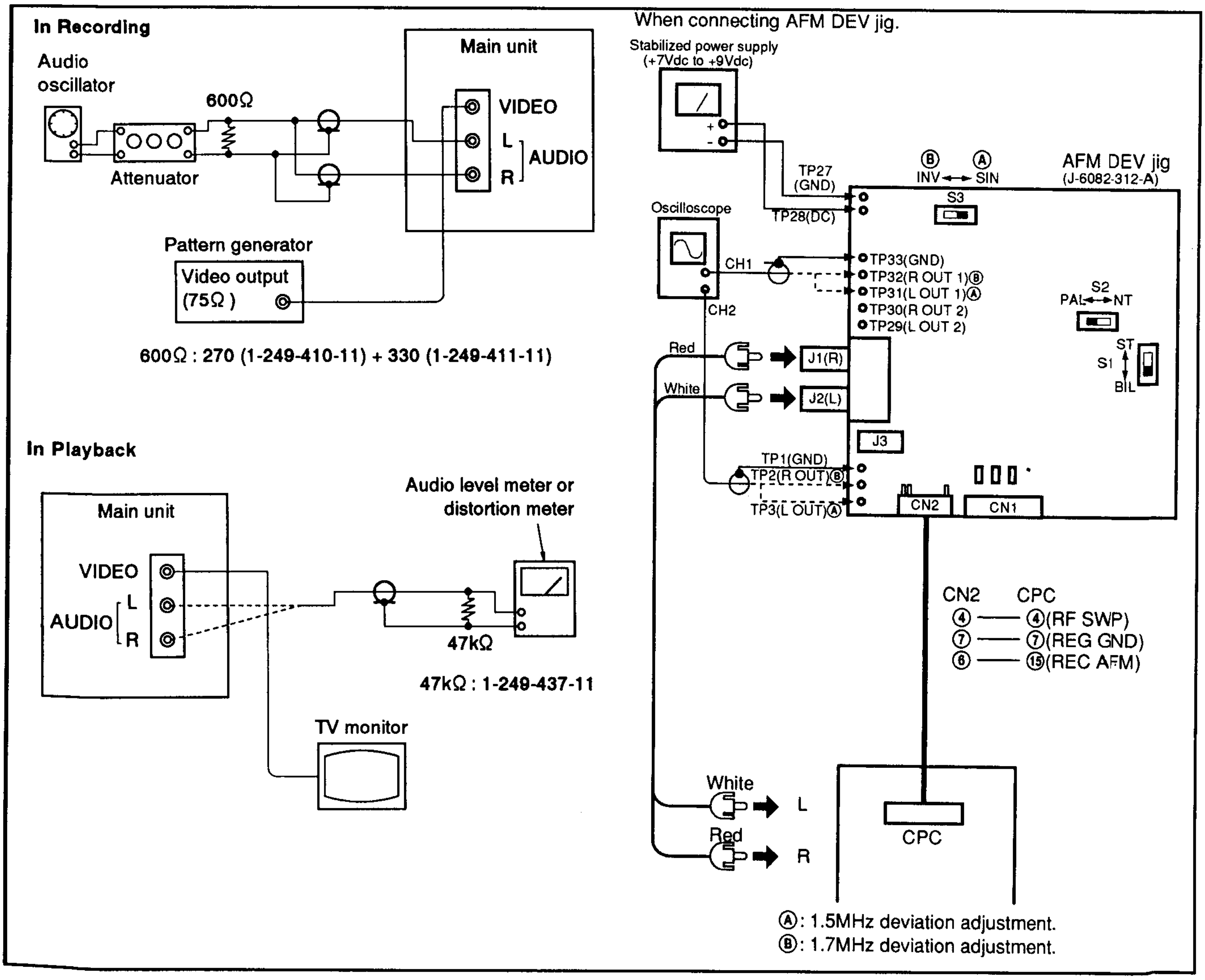

In Recording
Audio oscillator
600Ω
Attenuator
Main unit
VIDEO
L
R
AUDIO
Pattern generator
Video output (75Ω)
600Ω : 270 (1-249-410-11) + 330 (1-249-411-11)
In Playback
Main unit
VIDEO
AUDIO
L
R
Audio level meter or distortion meter
47kΩ
47kΩ : 1-249-437-11
TV monitor
When connecting AFM DEV jig.
Stabilized power supply (+7Vdc to +9Vdc)
+
-
TP27 (GND)
TP28(DC)
Oscilloscope
CH1
CH2
TP33(GND)
TP32(R OUT 1)Ⓑ
TP31(L OUT 1)Ⓐ
TP30(R OUT 2)
TP29(L OUT 2)
Ⓑ Ⓐ
INV ←→ SIN
S3
AFM DEV jig (J-6082-312-A)
S2
PAL ←→ NT
ST
S1
BIL
Red
White
J1(R)
J2(L)
J3
TP1(GND)
TP2(R OUT)Ⓑ
TP3(L OUT)Ⓐ
CN2
CN1
CN2 CPC
④ —— ④(RF SWP)
⑦ —— ⑦(REG GND)
⑥ —— ⑮(REC AFM)
White
L
Red
R
CPC
Ⓐ: 1.5MHz deviation adjustment.
Ⓑ: 1.7MHz deviation adjustment.

Fig. 6-3-16.

1. 1.5 MHz Deviation Adjustment

Sets the spectrum of the L-ch (L+R/2 signal) level modulated during recording. If deviated, the crosstalk of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the right and left audio input terminals (Note 1)
Measuring point	CH1: AFM DEV jig TP31 CH2: AFM DEV jig TP3
Measuring device	Oscilloscope ADD mode CH2 INV mode
Adjustment page	F
Adjustment address	5E
Specified value	The difference between CH1 signal and CH2 signal should be minimum.

Connection:

1) Connect CN2 of the AFM DEV jig to CPC of the FP-379 flexible board.
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28 (DC), TP27 (GND) of the AFM DEV jig to the DC power supply (+7 Vdc to +9 Vdc).
4) Set the AFM DEV jig switches to the following positions.
   S1 .... BIL position
   S2 .... PAL position
   S3 .... SIN position

Adjustment Method:

1) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
2) Set the oscilloscope to the ADD mode and CH2 to the INV (inverse) mode.
3) Set data: 01 to page: 0, address: 01.
4) Change the data of page: F, address: 5E and minimize the audio signal level difference (A).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

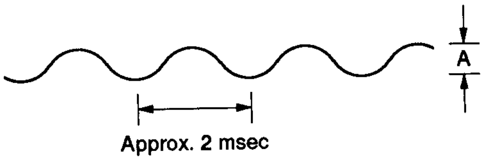


Fig. 6-3-17.

2. 1.7 MHz Deviation Adjustment

Sets the spectrum of the R-ch (L–R/2 signal) level modulated during recording. If deviated, the crosstalk of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the right and left audio input terminals
Measuring point	CH1: AFM DEV jig TP32 CH2: AFM DEV jig TP2
Measuring device	Oscilloscope ADD mode CH2 INV mode
Adjustment page	F
Adjustment address	5F
Specified value	The difference between CH1 signal and CH2 signal should be minimum.

Connection:

1) Connect CN2 of the AFM DEV jig to CPC of the FP-379 flexible board.
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28 (DC), TP27 (GND) of the AFM DEV jig to the DC power supply (+7 to +9 Vdc).
4) Set the AFM DEV jig switches to the following positions.
   S1 .... BIL position
   S2 .... PAL position
   S3 .... INV position

Adjustment Method:

1) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
2) Set the oscilloscope to the ADD mode and CH2 to the INV (inverse) mode.
3) Set data: 01 to page: 0, address: 01.
4) Change the data of page: F, address: 5F and minimize the audio signal level difference (A).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

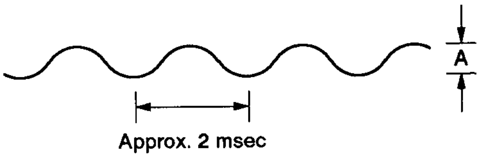


Fig. 6-3-18.

3. BPF f0 Adjustment

Sets the BPF passing frequency so that the AFM signal can separate from the playback RF signal properly. If deviated. the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

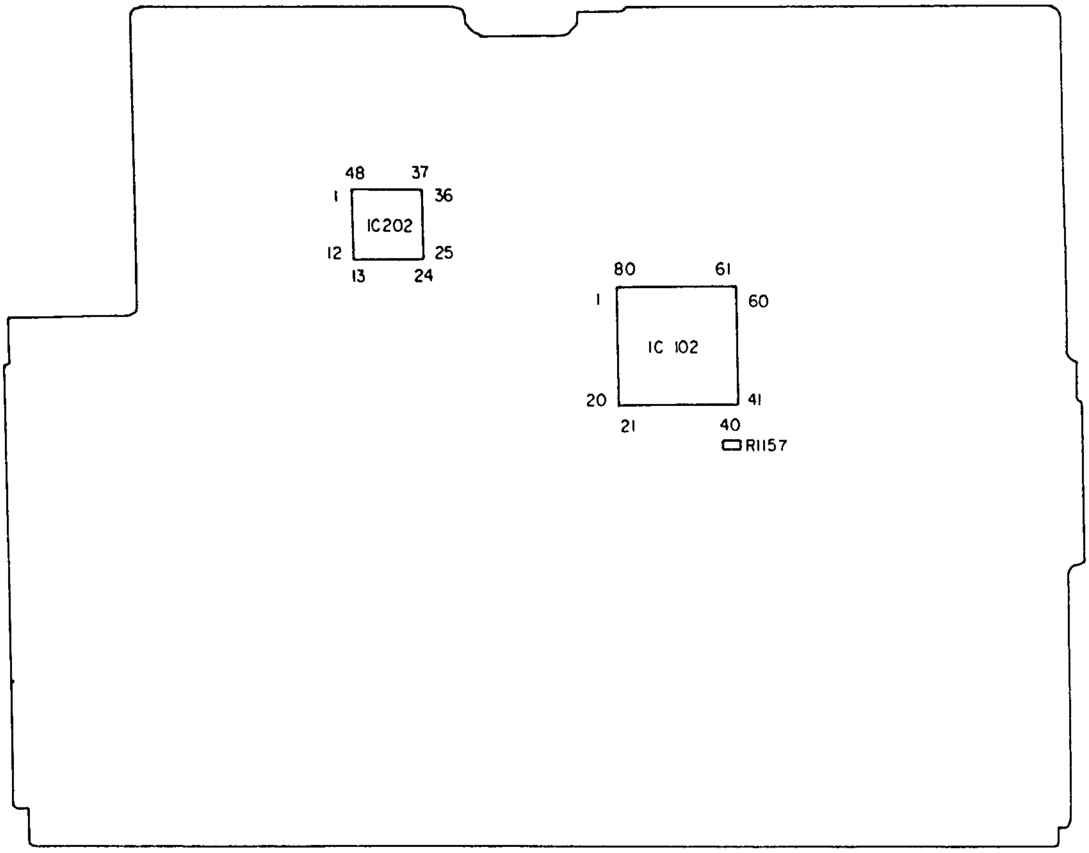
Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11CS)
Measuring point	Right or left audio output terminal
Measuring device	Distortion meter
Adjustment page	F
Adjustment address	60
Specified value	The right and left channel distortion rates should be almost the same (within ± 1%) and minimum

Adjustment Method:

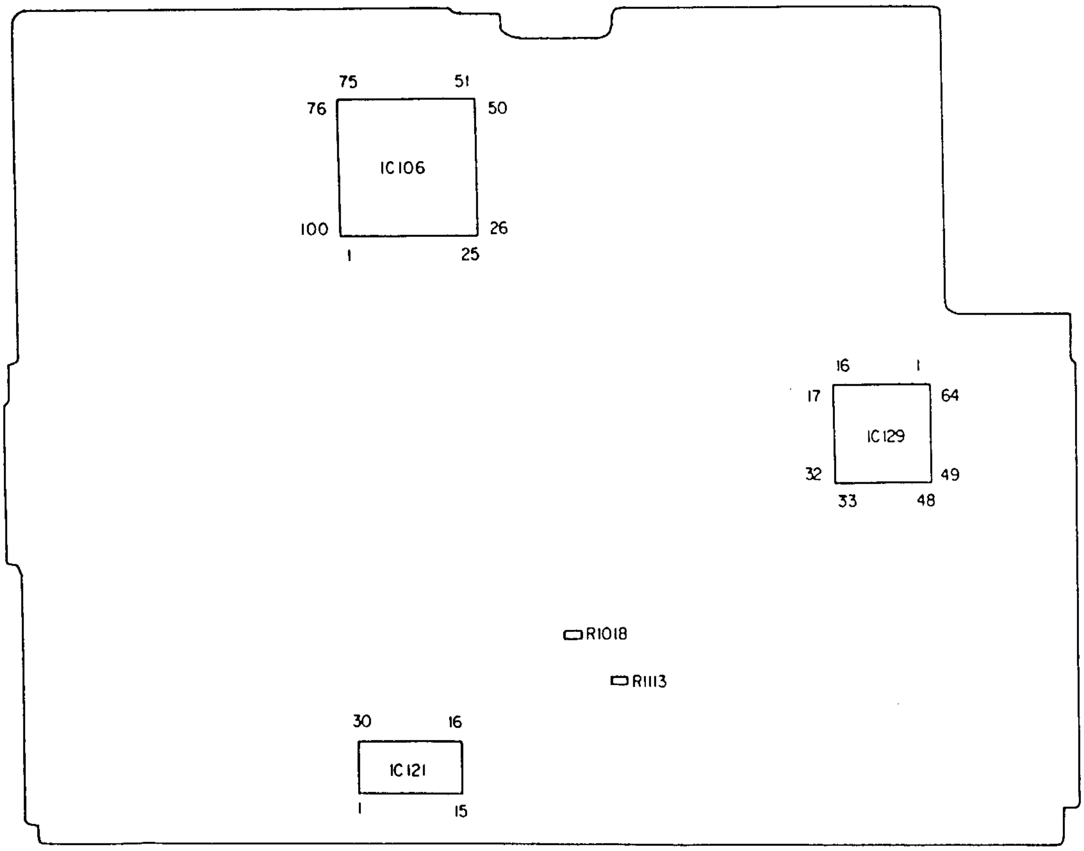
1) Set data: 01 to page: 0, address: 01.
2) Set the Hi-Fi sound switch (menu display) to " $\boxed{2}$ ".
3) Change the data of page: F, address: 60 and minimize the distortion rate.
4) Press the PAUSE button of the adjusting remote commander.
5) Set the Hi-Fi sound switch to " $\boxed{1}$ ".
6) Change the data of page: F, address: 60 and minimize the distortion rate.
7) Press the PAUSE button of the adjusting remote commander.
8) Repeat steps 2) to 7) and set the data of address: 60 so that the distortions rates when the Hi-Fi sound switch is set to " $\boxed{2}$ " and set to " $\boxed{1}$ " respectively are almost the same and minimum.
9) Press the PAUSE button of the adjusting remote commander.
10) Set data: 00 to page: 0, address: 01.
11) Set the Hi-Fi sound switch to "STEREO".

3-6. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-177 BOARD (COMPONENT SIDE)

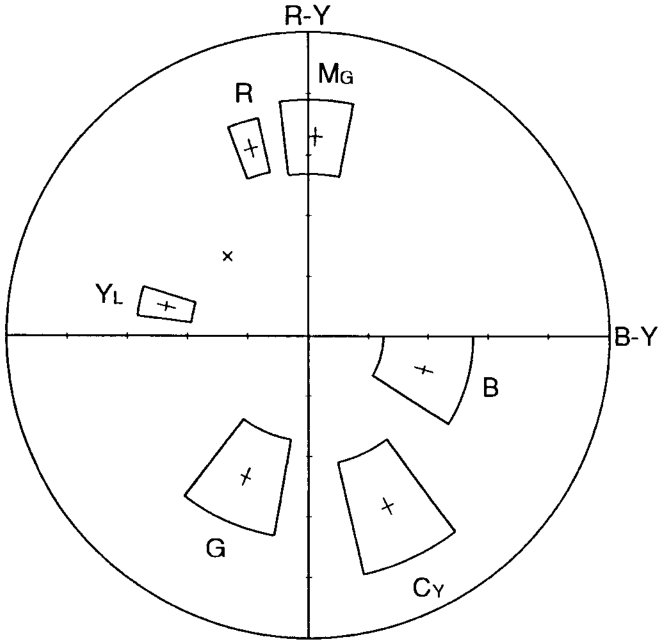

48
37
1
36
IC202
12
25
13
24
80
61
1
60
IC 102
20
41
21
40
R1157

VC-177 BOARD (CONDUCTOR SIDE)


75
51
76
50
IC106
100
26
1
25
16
1
17
64
IC129
32
49
33
48
R1018
R1113
30
16
IC121
1
15

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

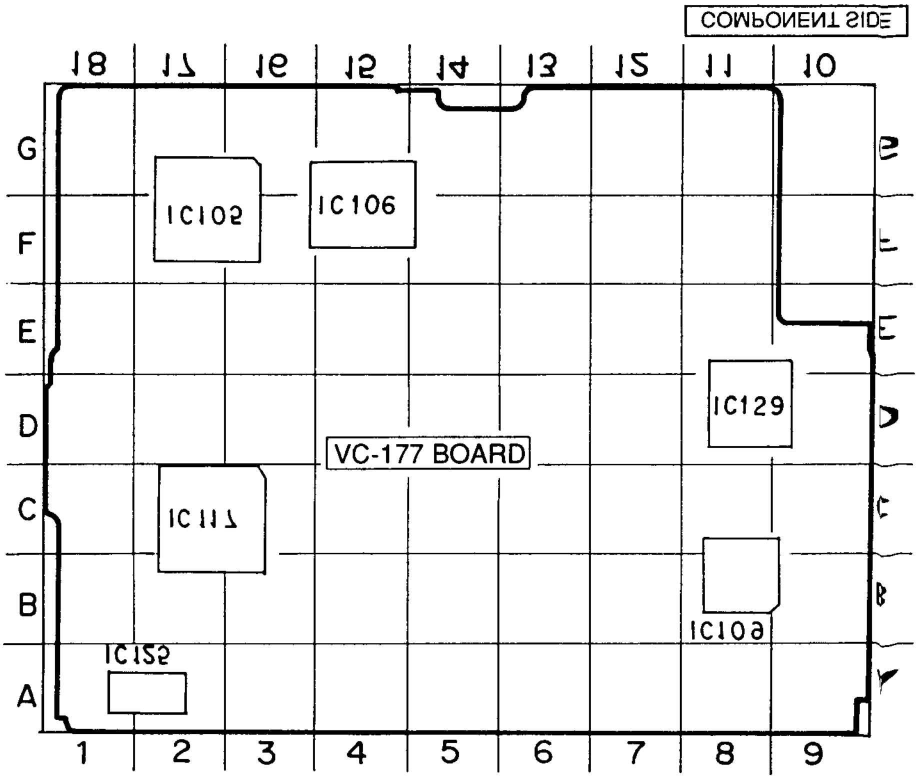
Take a copy CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.


R-Y
MG
R
YL
B-Y
B
G
CY

CCD-TR2200E/TR2300E/TR3300E

<PARTS REFERENCE SHEET>

You can find the parts position of mount locations applying to boards of a set.


COMPONENT SIDE
18
17
16
15
14
13
12
11
10
G
F
E
D
C
B
A
IC105
IC106
IC129
VC-177 BOARD
IC117
IC109
IC125
1
2
3
4
5
6
7
8
9
CONDUCTOR SIDE

CCD-TR2200E/TR2300E/TR3300E

CCD-TR2200E/TR2300E/TR3300E

RMT-715/716

SONY

SERVICE MANUAL

AEP Model
UK Model
CCD-TR2200E/TR3300E
E Model
CCD-TR2300E/TR3300E
Australian Model
CCD-TR3300E
Hong Kong Model
Tourist Model
CCD-TR2300E

CORRECTION-1

Please correct your Service Manual
(96-035)

SECTION 6 ADJUSTMENT

☞ : indicated additional portion

☞ : indicated changed portion

Page 6–15

5. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically. If it is not adjusted correctly, it will be out of focus during auto focusing/ manual focusing.

5-1. Flange Back Adjustment (1)

Adjusting method:

Subject	Flange back adjustment chart (1988mm from the front of the protection glass) (Luminance: 200 ± 50 lux)
Measurement Point	Check operations on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

1) Check that at both the zoom lens TELE terminal and WIDE terminal, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Set data: 01 to page: 0, address: 01.
3) Check that the data of page: F, address: 2E to 33, 49 to 4D is the initial value (see table below).

Address	Data	Address	Data
2E	18	49	2D
2F	1B	4A	00
30	C8	4B	00
31	24	4C	00
32	E3	4D	16
33	15		

4) Check that the data of page: 2, address: 02 is 00.
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 15 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
(The adjustment data will be automatically input to page: F, address: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments
1) Turn OFF the main power supply (8.4V)
2) Perform "Flange Back Adjustment (2)".

Page 6–16

5-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

Adjusting Method:

1) Set the IRIS to open. (Use a ND filter)
2) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away (subjects with clear contrast such as buildings, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
3) Set data: 01 to page: 0, address: 01.
4) Check that the data of page: 2, address: 02 is "00".
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 29 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
   (Adjustment data will automatically be input to page: F, addresses: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments

1) Set data: 00 to page: 0, address: 01.
2) Turn OFF the main power supply (8.4V).
3) Perform "Flange Back Check".

MC-Service

9-973-892-91

Sony Corporation
Personal A&V Products Company

960975-1

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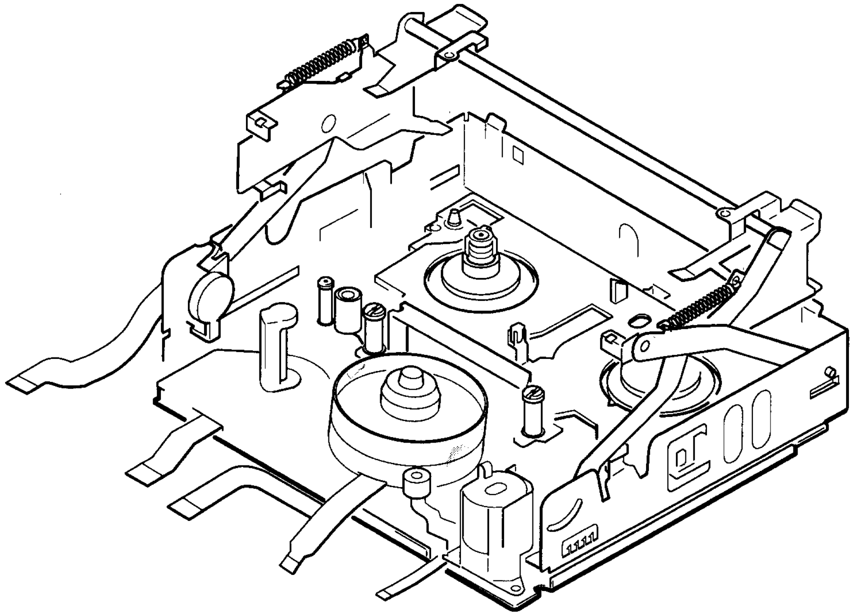
Published by Quality Engineering Dept.
(Osaki East)

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

Use this mechanical adjustment manual Ⅶ together with the service manual of the respective models.



MC-Service

MICROFILM

8 MECHANISM DECK

SONY®

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For the mode selector operation, schematic diagram and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.

To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.

The mechanisms are adjusted while set in the USE mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the USE mode.)

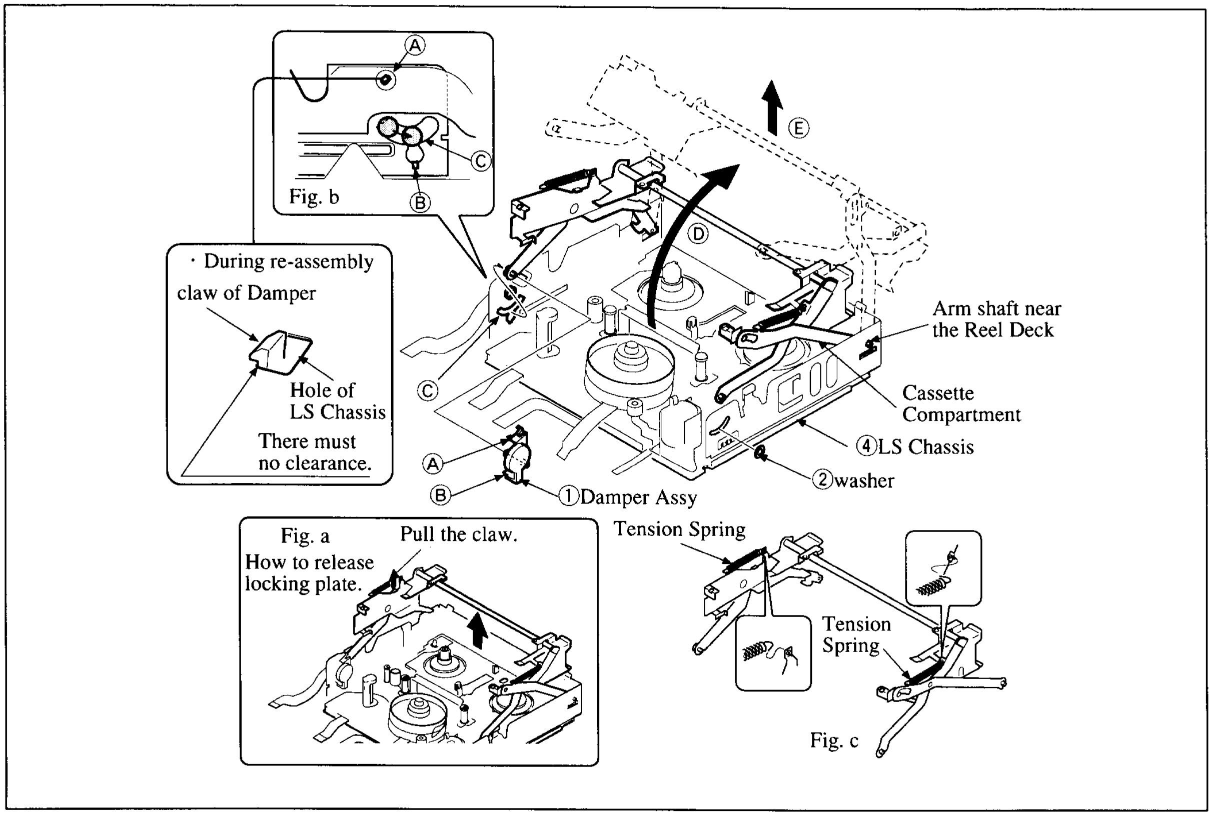
1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to USE mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)



Ⓐ
Ⓒ
Fig. b
Ⓑ
Ⓔ
Ⓓ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Ⓒ
Ⓐ
Ⓑ
①Damper Assy
Arm shaft near
the Reel Deck
Cassette
Compartment
④LS Chassis
②washer
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

Example of establishing the TEST mode: model CCD-TR420E/TR440E. Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection. Select page: 7, address: 01, set data: 01 and press the PAUSE button. After tape loading or other desired operations of mechanism are completed, be sure to perform the following: Select page: F, address: 01, set data :00 and press the PAUSE button. Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

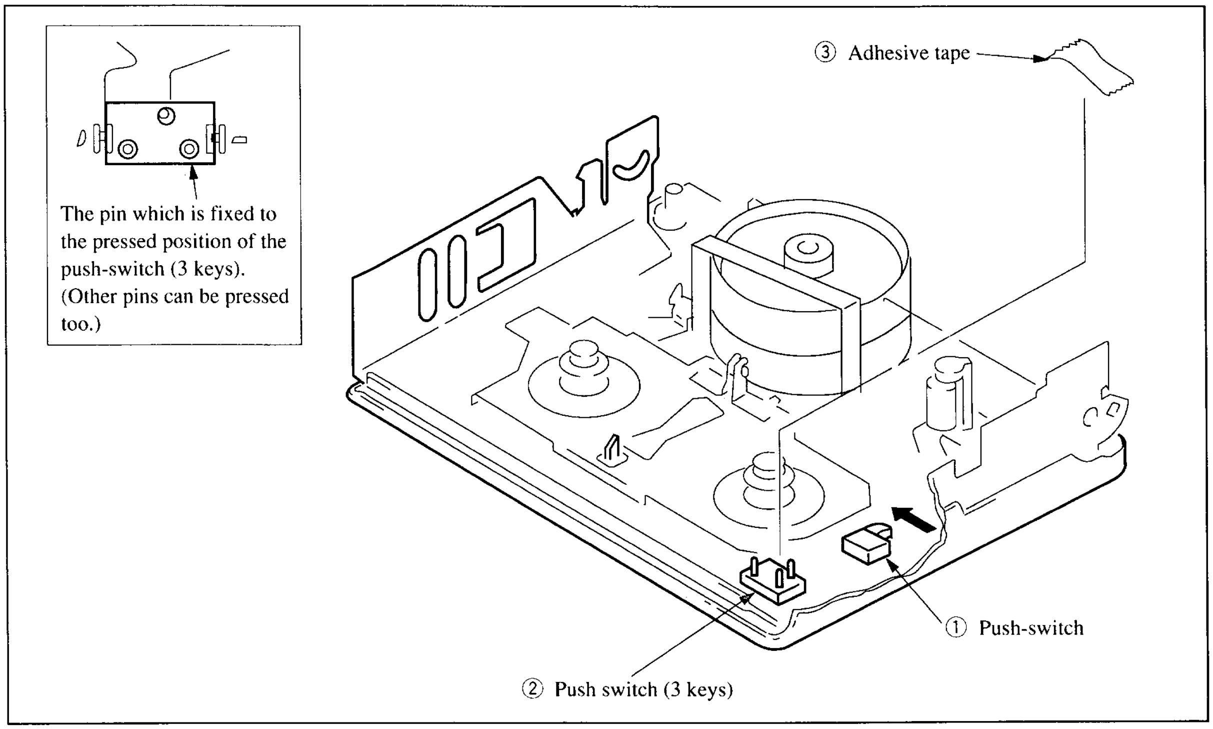

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)
③ Adhesive tape
① Push-switch
② Push switch (3 keys)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

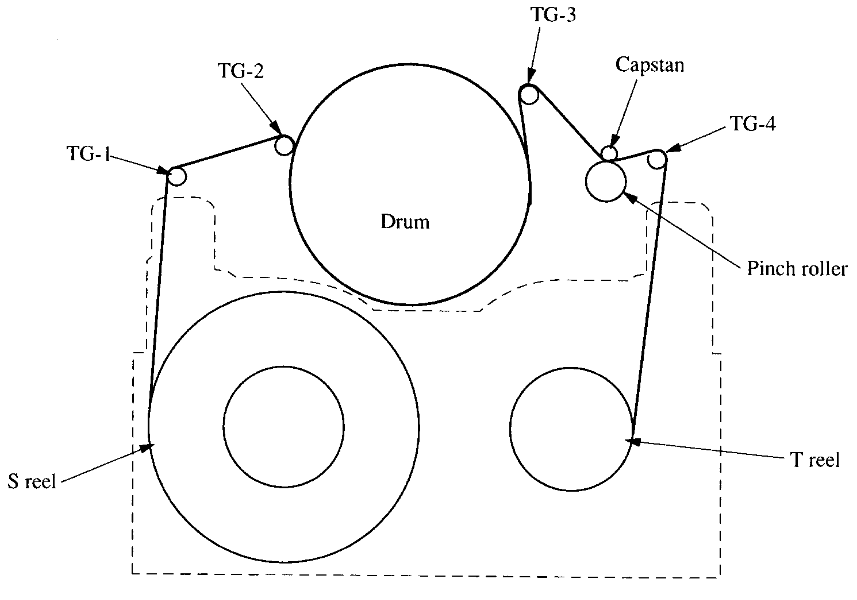


Fig. 3

2-3. Periodic Check Items

	Maintenance and Inspection Points	Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD RVS Torque Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

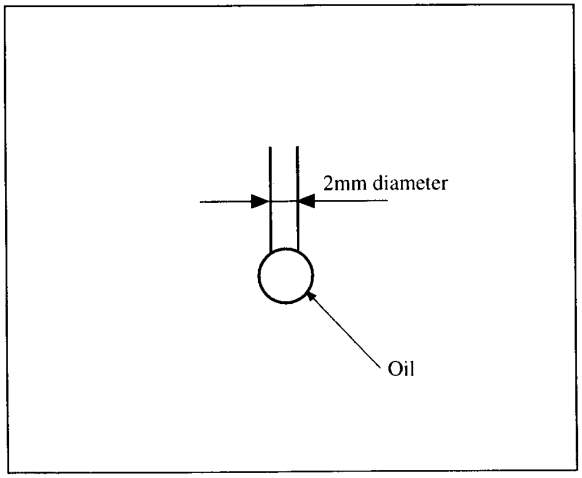


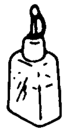
Fig. 4

2-4. Service Tool List

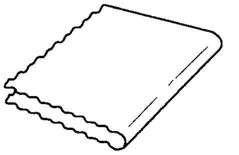
Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	——	
J-2	Cleaning piece	2-034-697-00	——	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		——	
J-4	Head demagnetizer	Commercially available	——	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	——	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	——	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	——	
J-10	Remote commander for adjustment	J-6082-053-B	——	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	——	
J-12	FLOIL Grease SG-941	7-662-001-39	——	
J-13	FLOIL Grease SG-055G	7-651-000-09	——	

Other equipment
- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

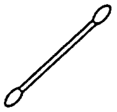
J-1



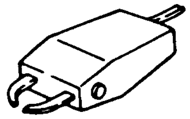
J-2



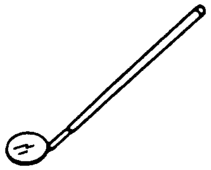
J-3



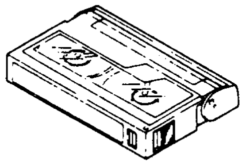
J-4



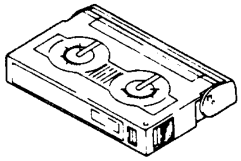
J-5



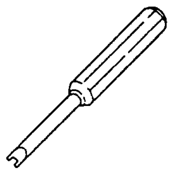
J-6



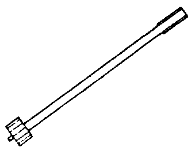
J-7



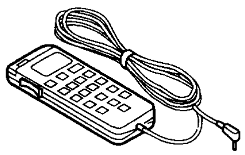
J-8



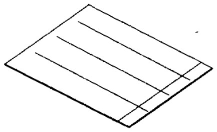
J-9



J-10

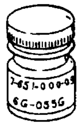


J-11



J-12

J-13



3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

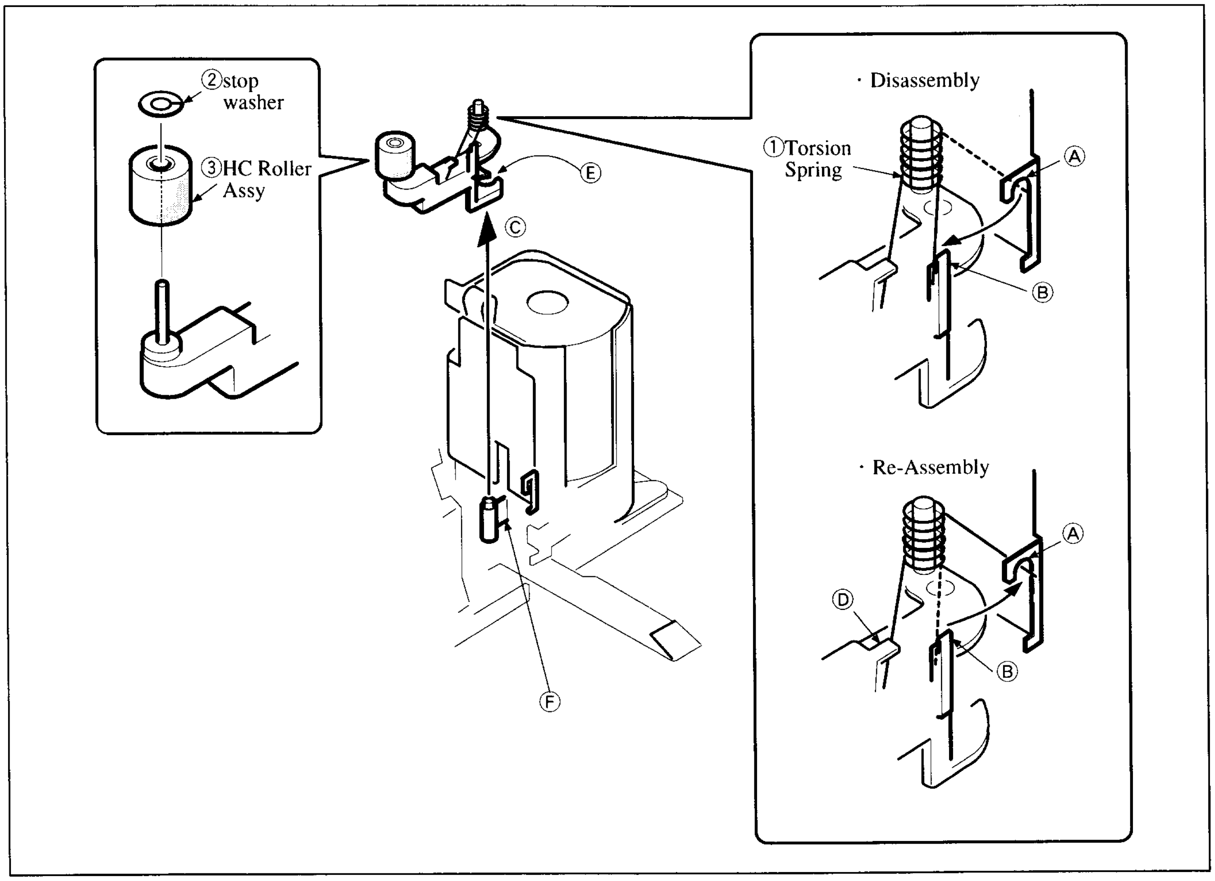

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓓ
Ⓐ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to $\boxed{\text{USE}}$ mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

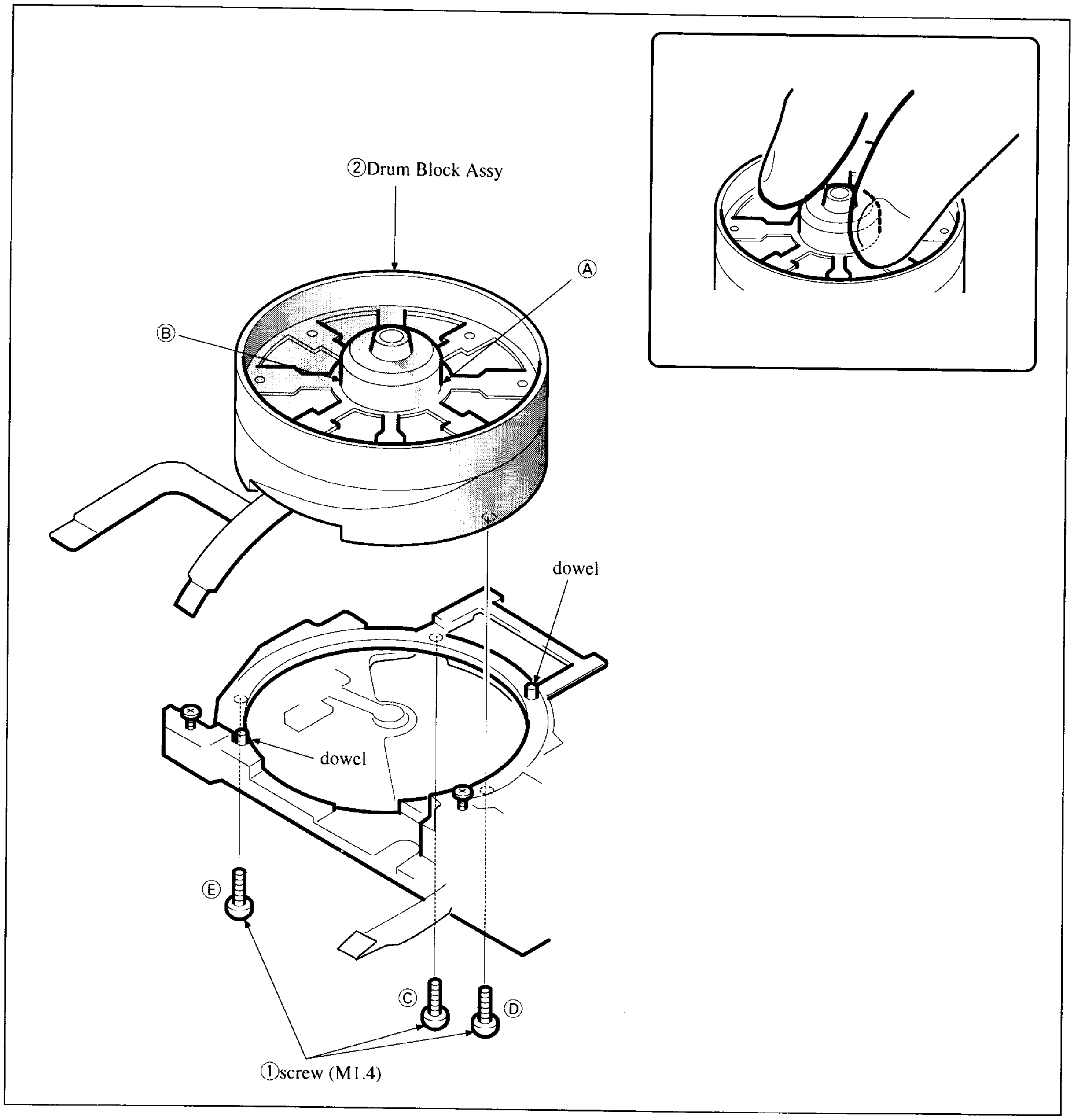


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

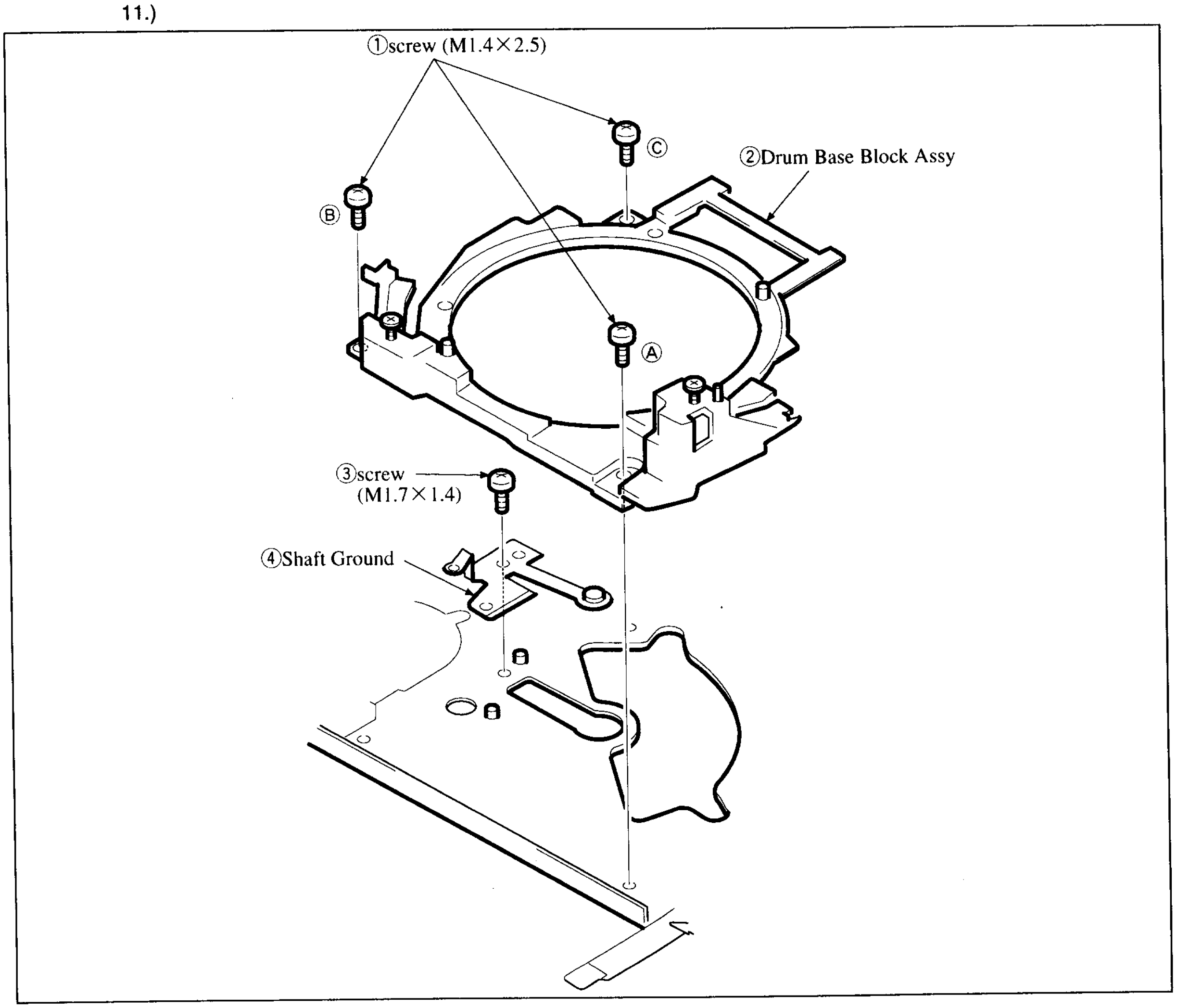


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
(Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.

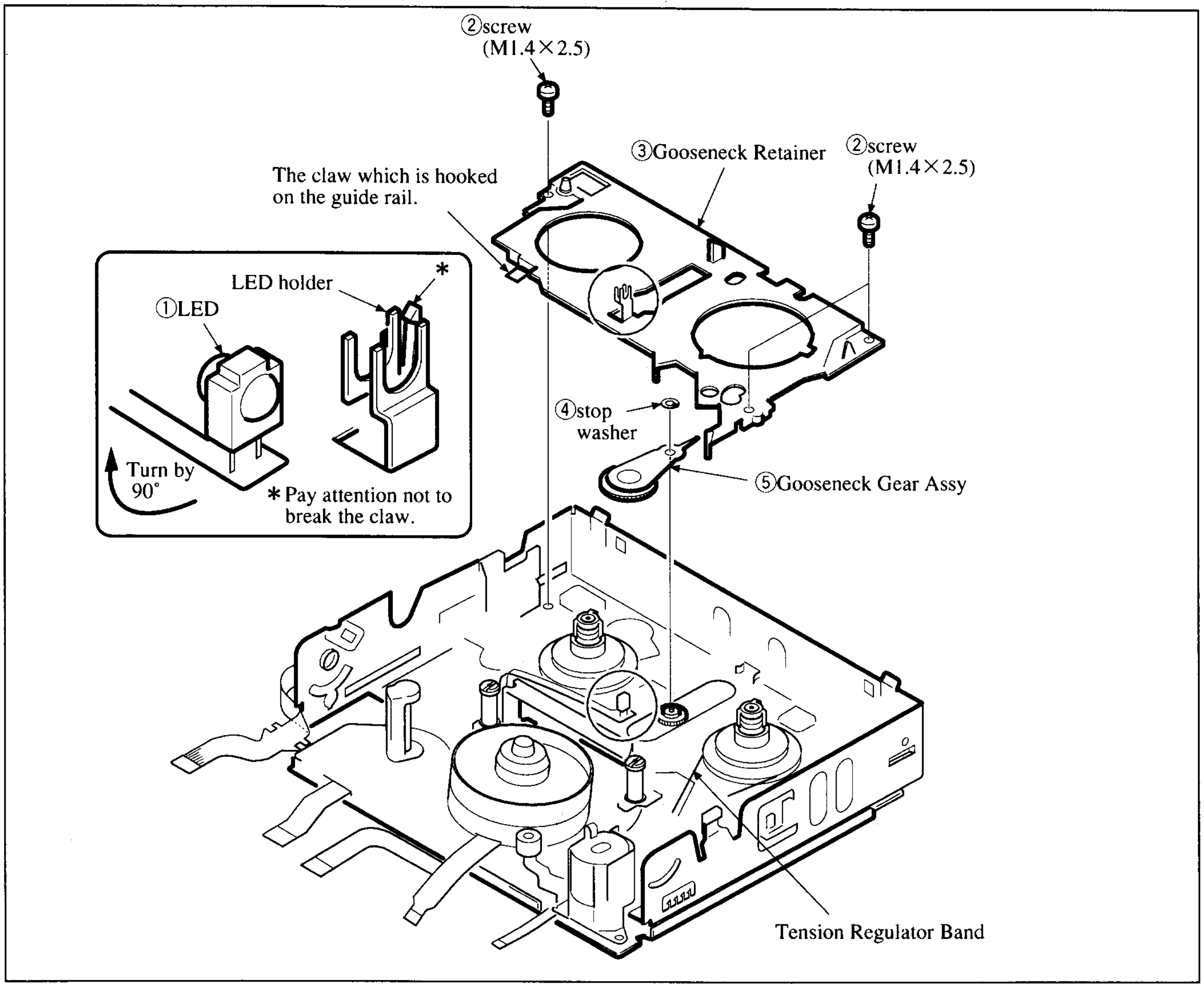

②screw
(M1.4×2.5)
③Gooseneck Retainer
②screw
(M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
Turn by 90°
* Pay attention not to break the claw.
④stop washer
⑤Gooseneck Gear Assy
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

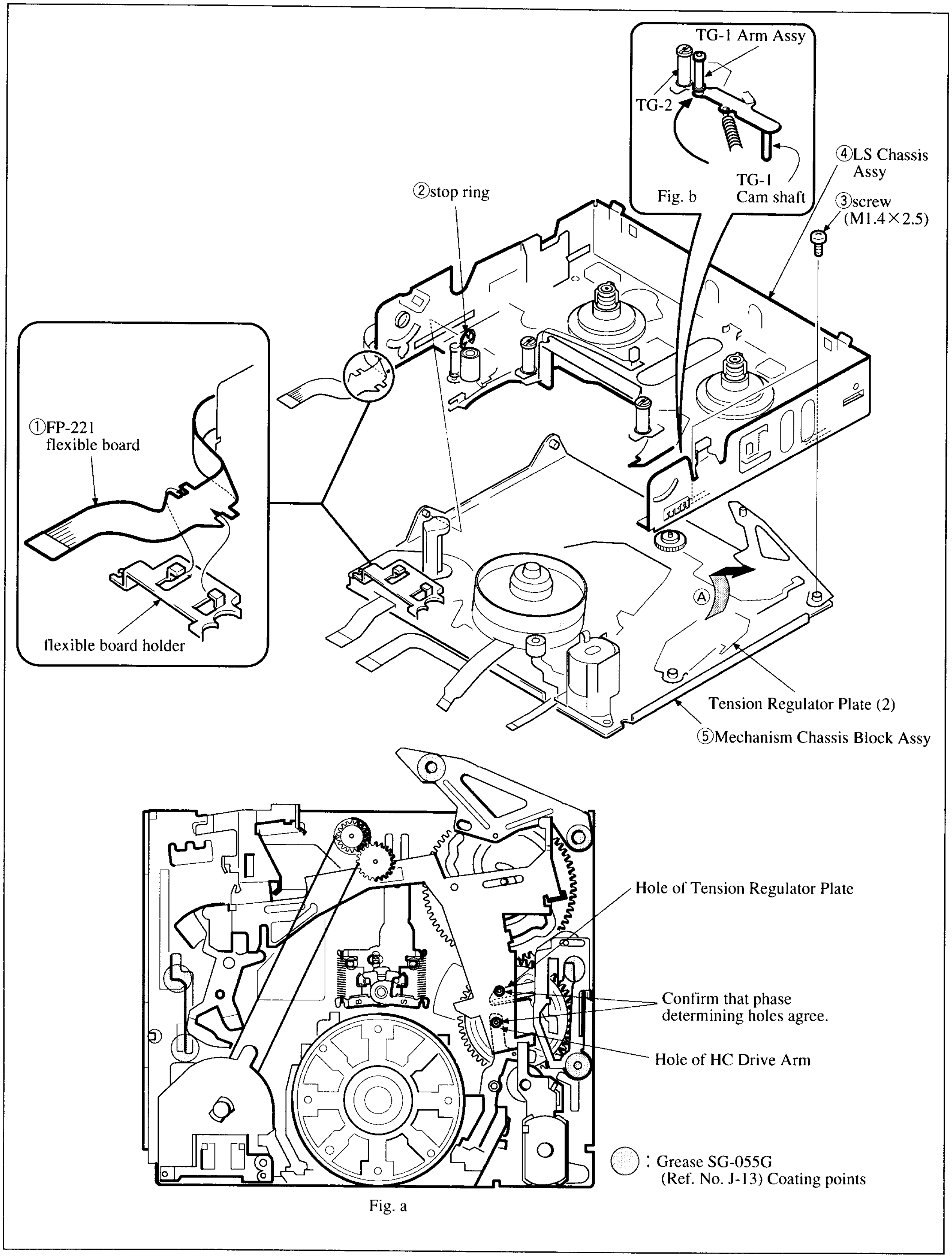

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
Fig. b
④LS Chassis Assy
③screw (M1.4×2.5)
②stop ring
①FP-221 flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase determining holes agree.
Hole of HC Drive Arm
: Grease SG-055G (Ref. No. J-13) Coating points
Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**

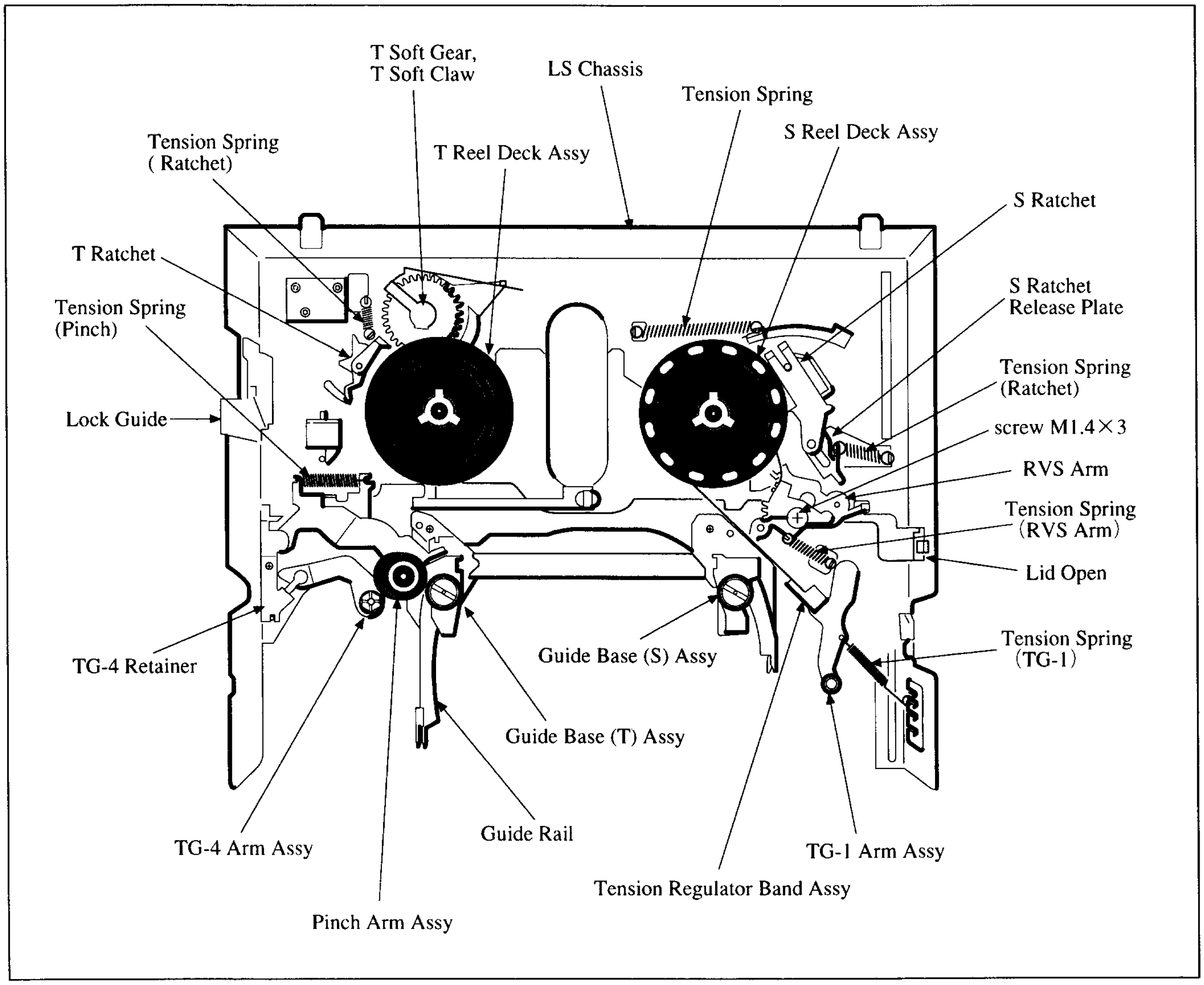

T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
S Ratchet
Release Plate
Tension Spring
(Pinch)
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
TG-4 Retainer
Guide Base (S) Assy
Tension Spring
(TG-1)
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it .
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it .

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

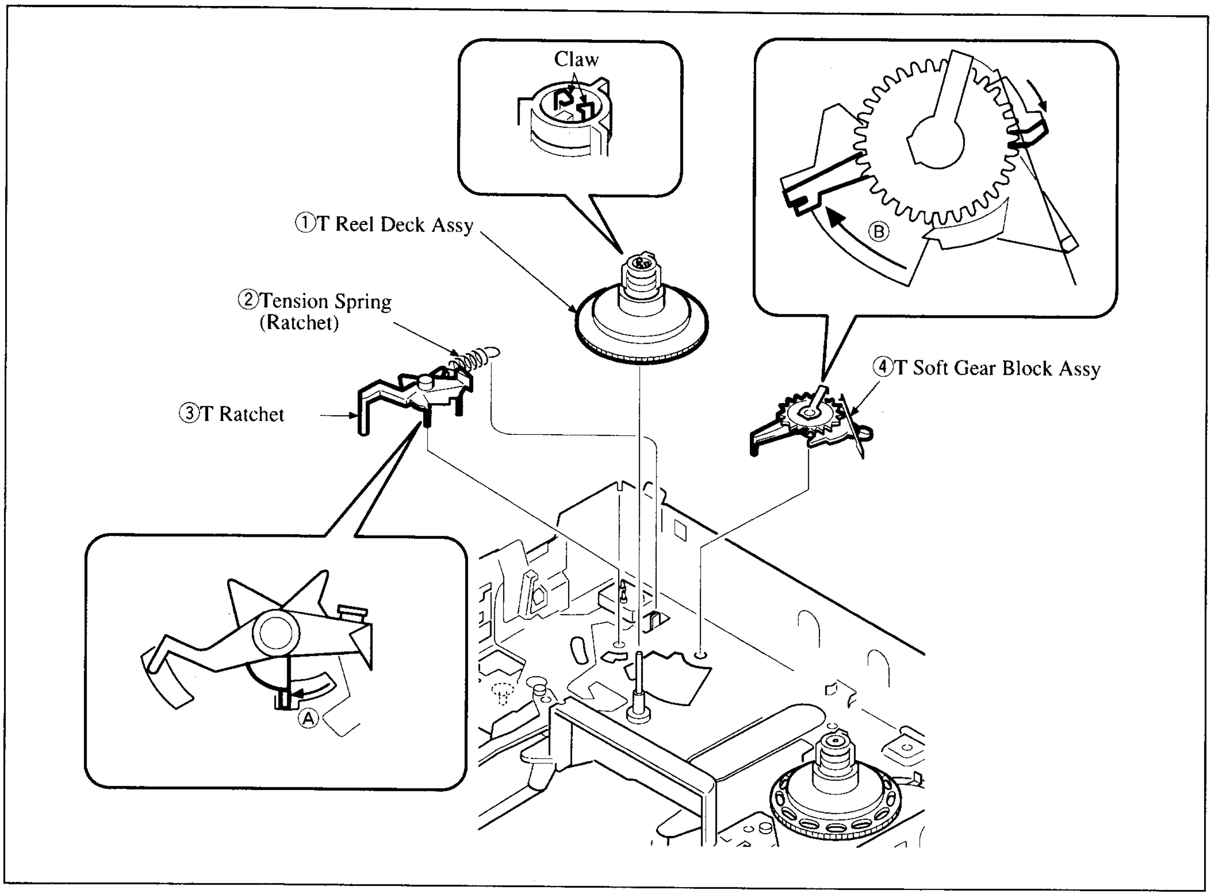


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

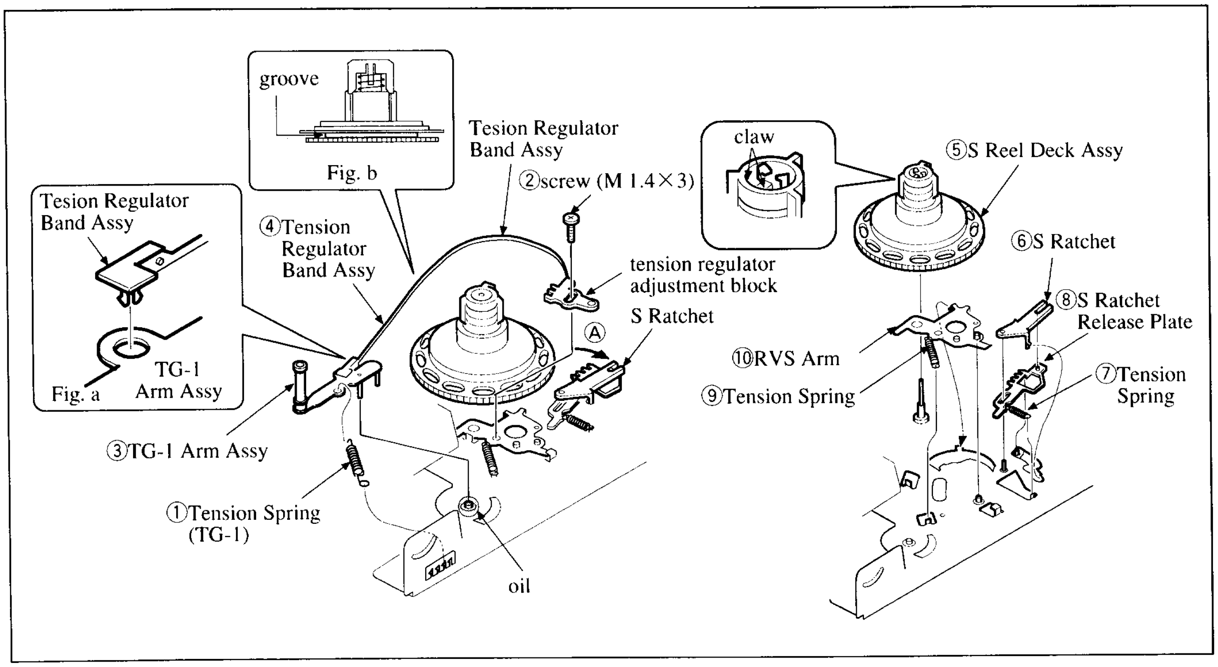

groove
Fig. b
Tesion Regulator Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
Tesion Regulator Band Assy
④Tension Regulator Band Assy
⑥S Ratchet
tension regulator adjustment block
S Ratchet
Ⓐ
⑧S Ratchet Release Plate
⑩RVS Arm
⑦Tension Spring
⑨Tension Spring
TG-1 Arm Assy
Fig. a
③TG-1 Arm Assy
①Tension Spring (TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

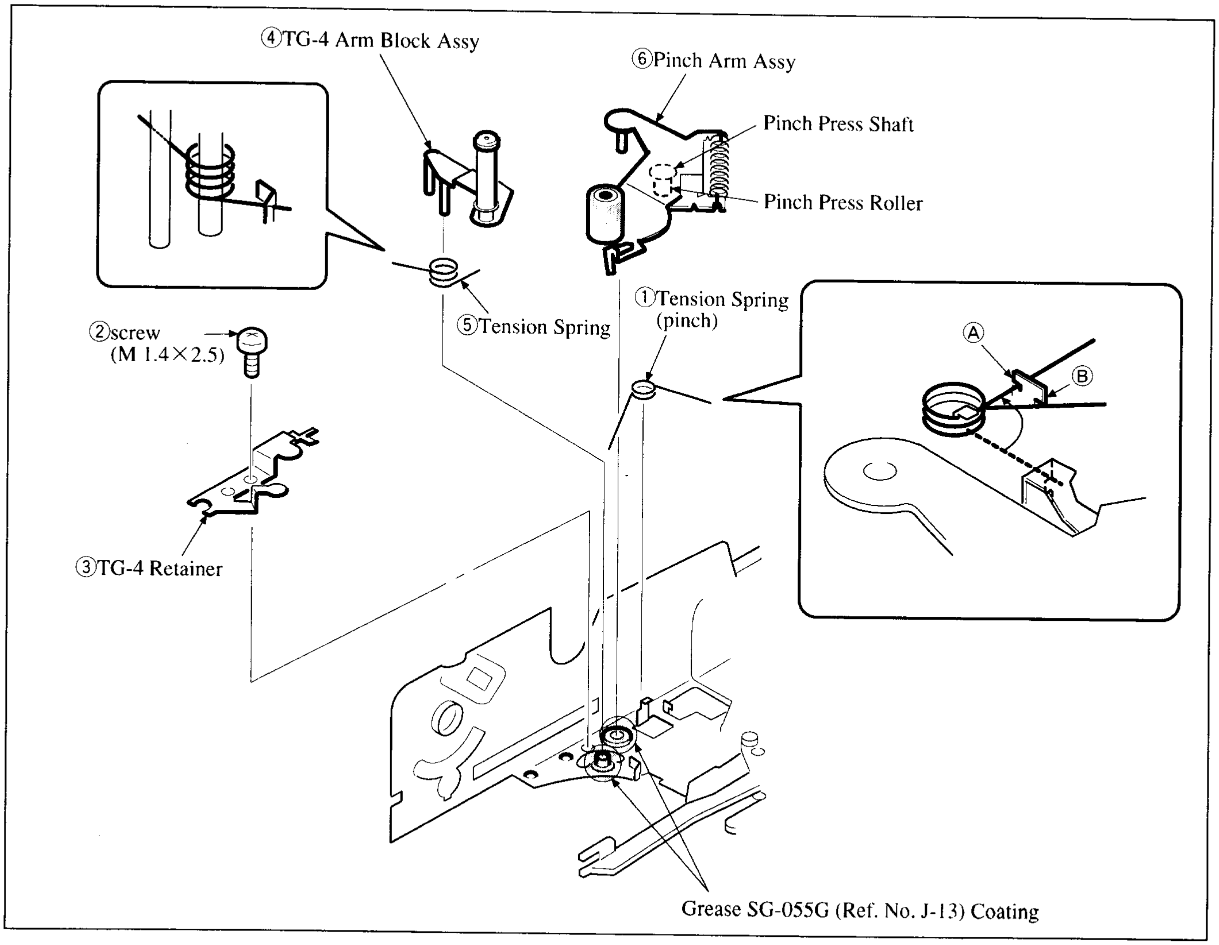

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
⑤Tension Spring
①Tension Spring (pinch)
②screw (M 1.4×2.5)
③TG-4 Retainer
Ⓐ
Ⓑ
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

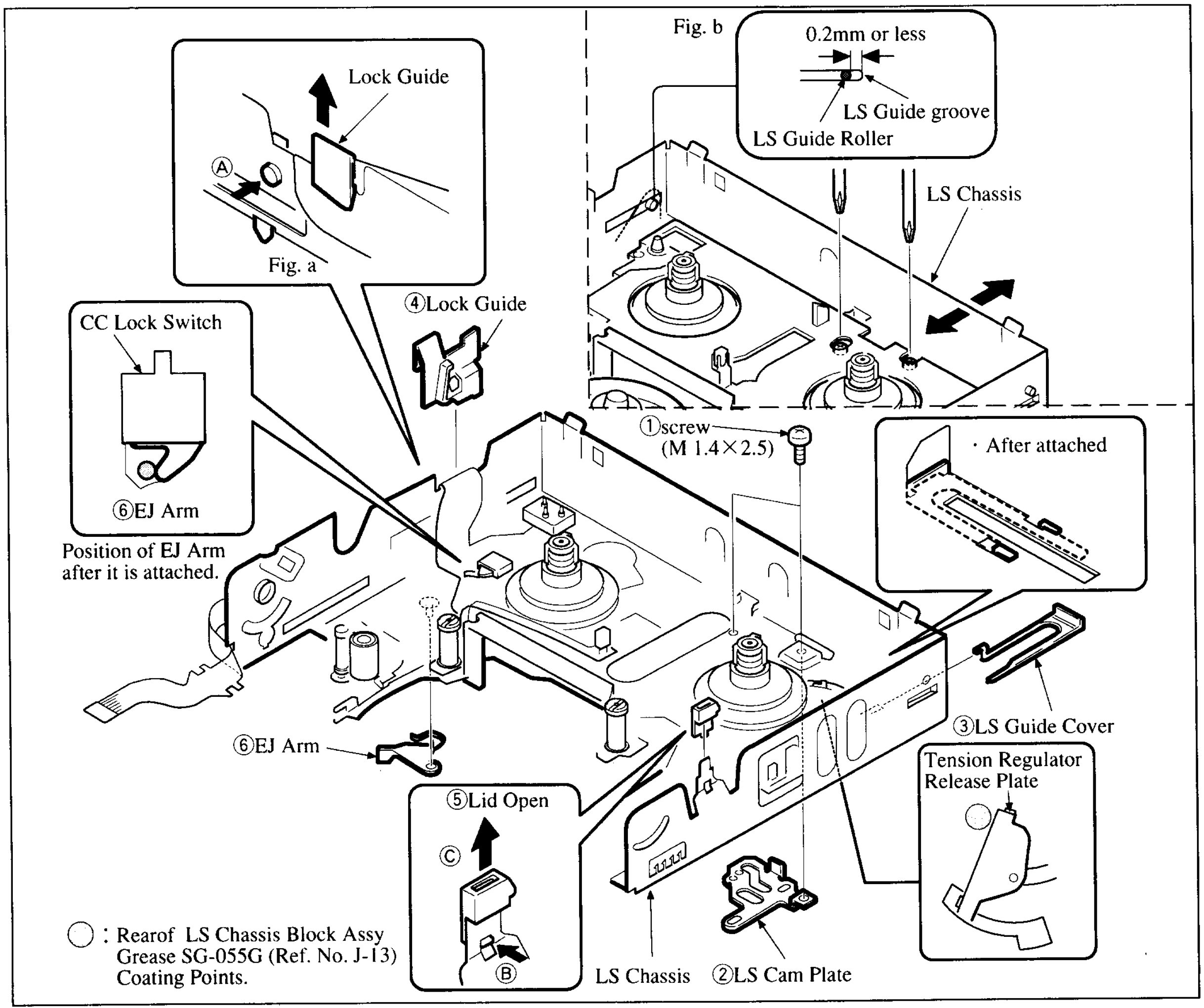
3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide (Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
   In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.


Lock Guide
Ⓐ
Fig. a
④Lock Guide
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
①screw (M 1.4×2.5)
· After attached
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
③LS Guide Cover
Tension Regulator Release Plate
LS Chassis
②LS Cam Plate

○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

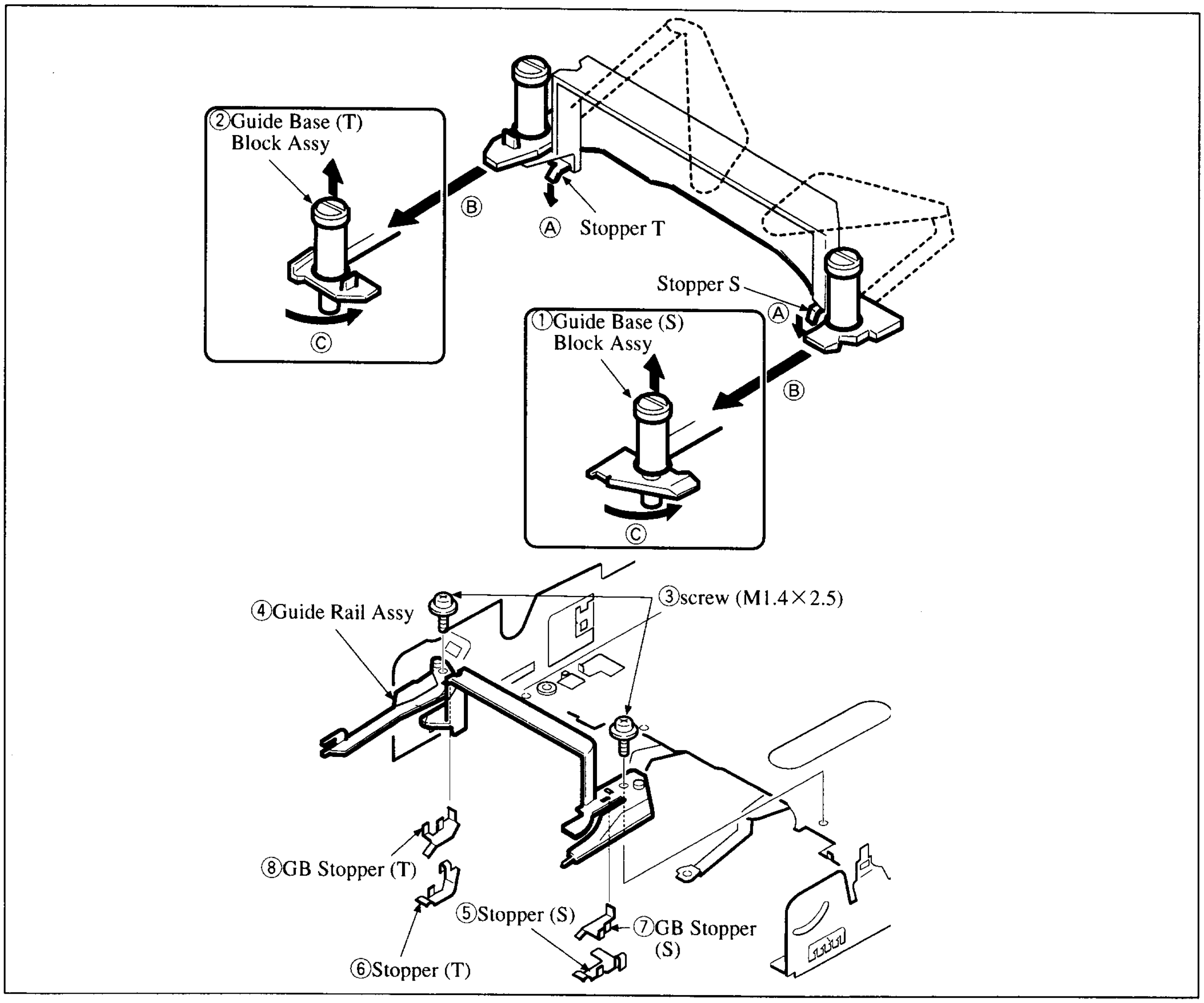

②Guide Base (T)
Block Assy
Ⓑ
Ⓐ Stopper T
Ⓒ
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper
(S)
⑥Stopper (T)

Fig. 15

- **PARTS CONSTITUTING THE MECHANISM CHASSIS**

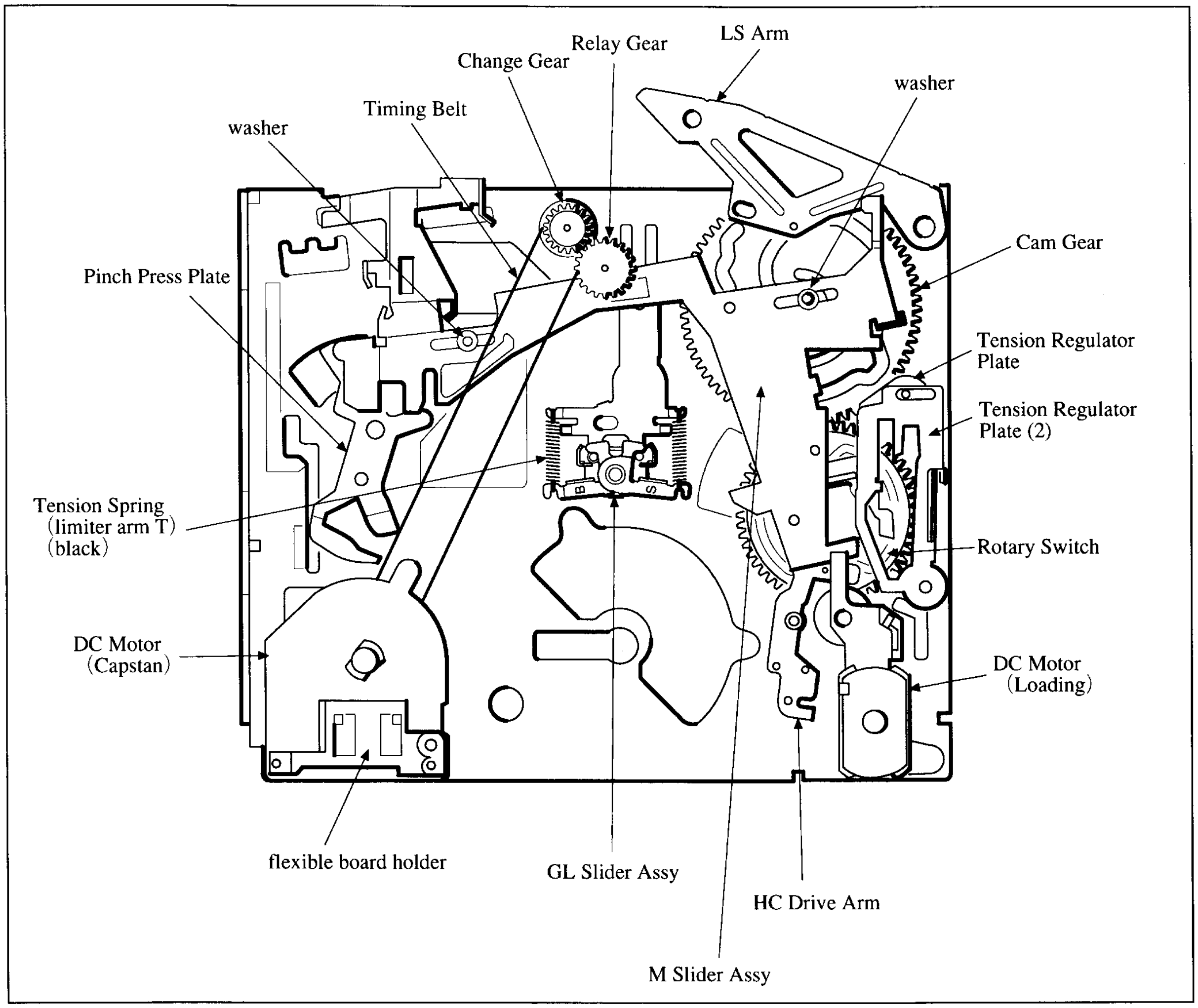

Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

3-11. DC Motor Assy (Loading)
(Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.

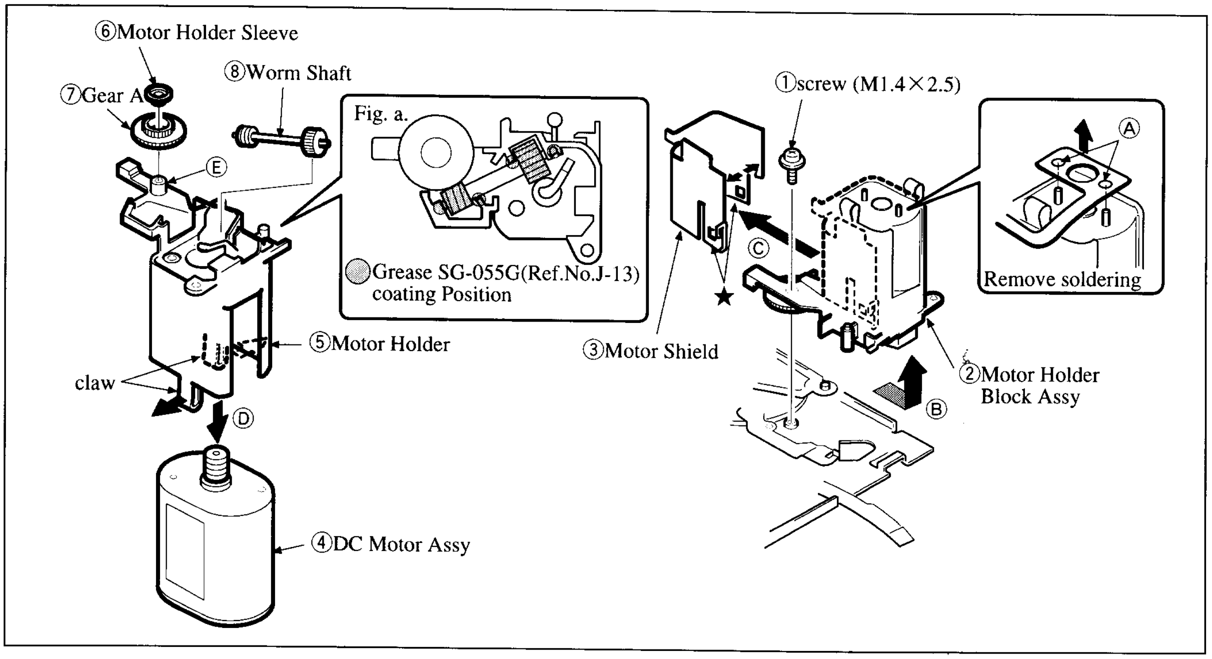

⑥Motor Holder Sleeve
⑧Worm Shaft
⑦Gear A
Ⓔ
Fig. a.
● Grease SG-055G(Ref.No.J-13) coating Position
⑤Motor Holder
claw
Ⓓ
④DC Motor Assy
①screw (M1.4×2.5)
Ⓒ
★
③Motor Shield
Ⓐ
Remove soldering
②Motor Holder Block Assy
Ⓑ

Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk * Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).

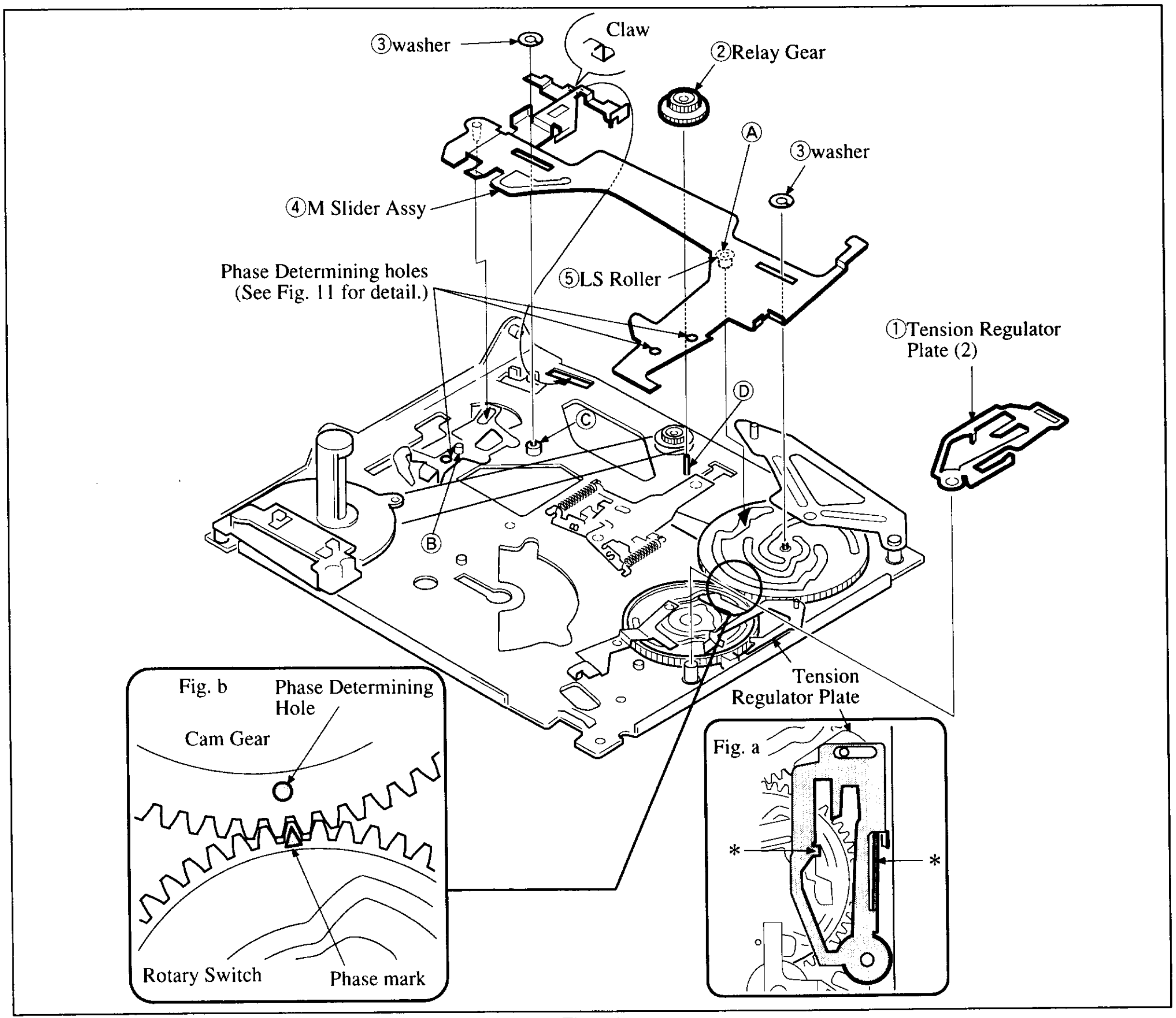

③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes
(See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator Plate (2)
Ⓓ
Ⓒ
Ⓑ
Tension Regulator Plate
Fig. b
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Fig. a
*
*

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

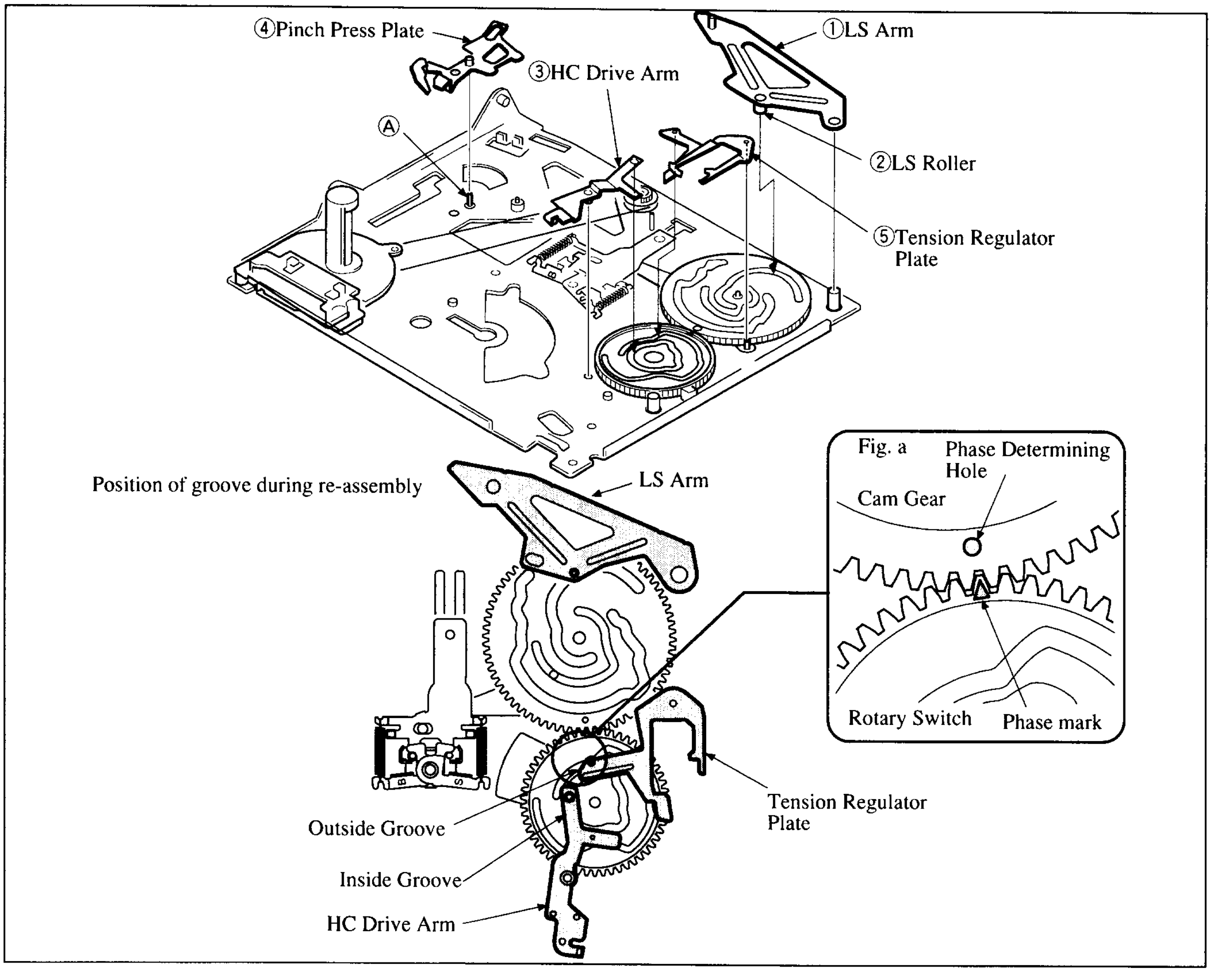

④Pinch Press Plate
③HC Drive Arm
①LS Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Position of groove during re-assembly
LS Arm
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

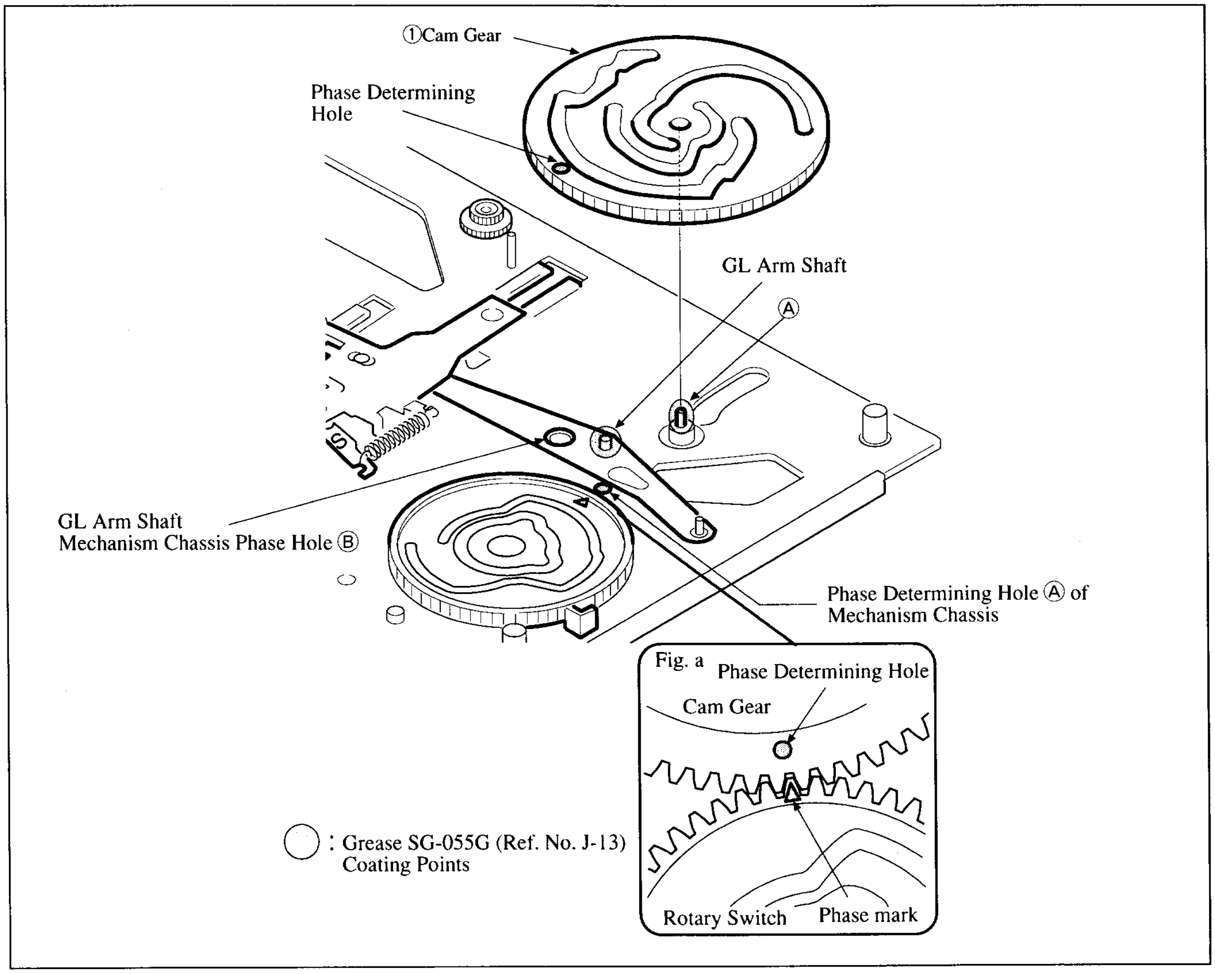

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft
Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

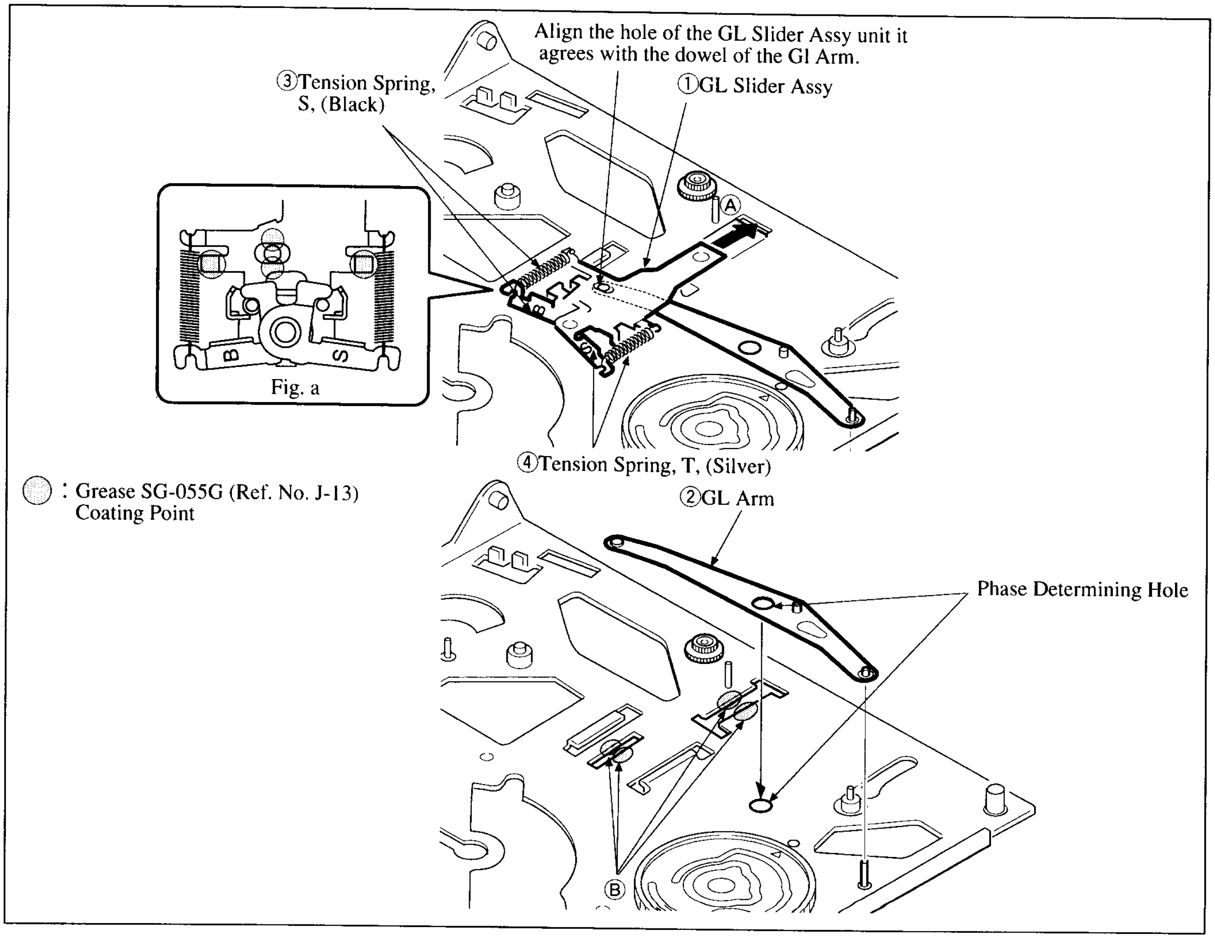

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
B
S
Fig. a
④Tension Spring, T, (Silver)
○ : Grease SG-055G (Ref. No. J-13) Coating Point
②GL Arm
Phase Determining Hole
Ⓑ

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

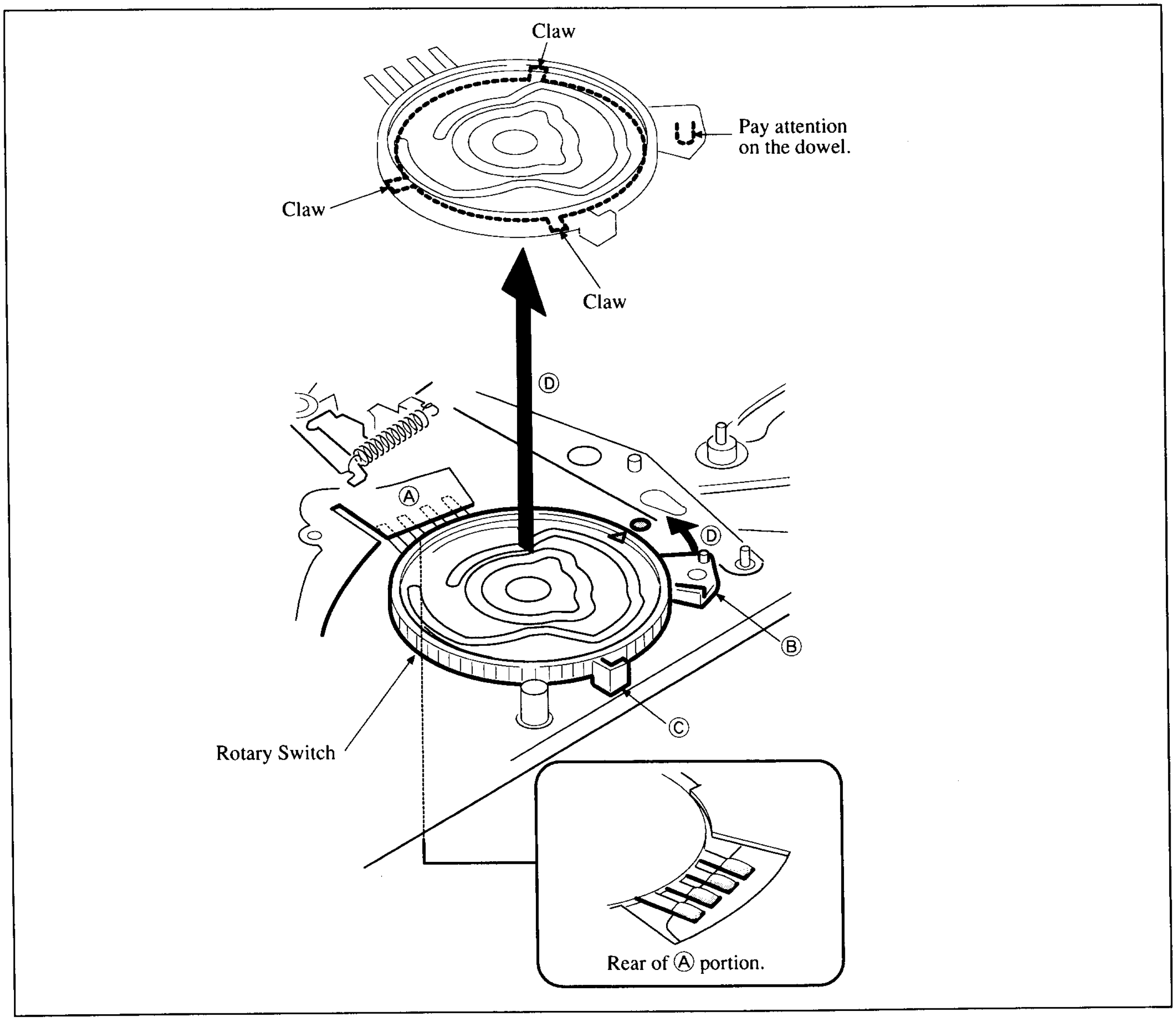


Fig. 22

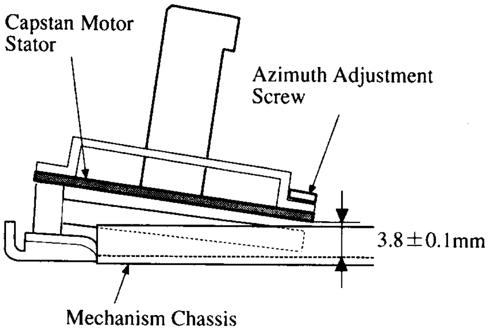
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor Stator
Azimuth Adjustment Screw
3.8±0.1mm
Mechanism Chassis

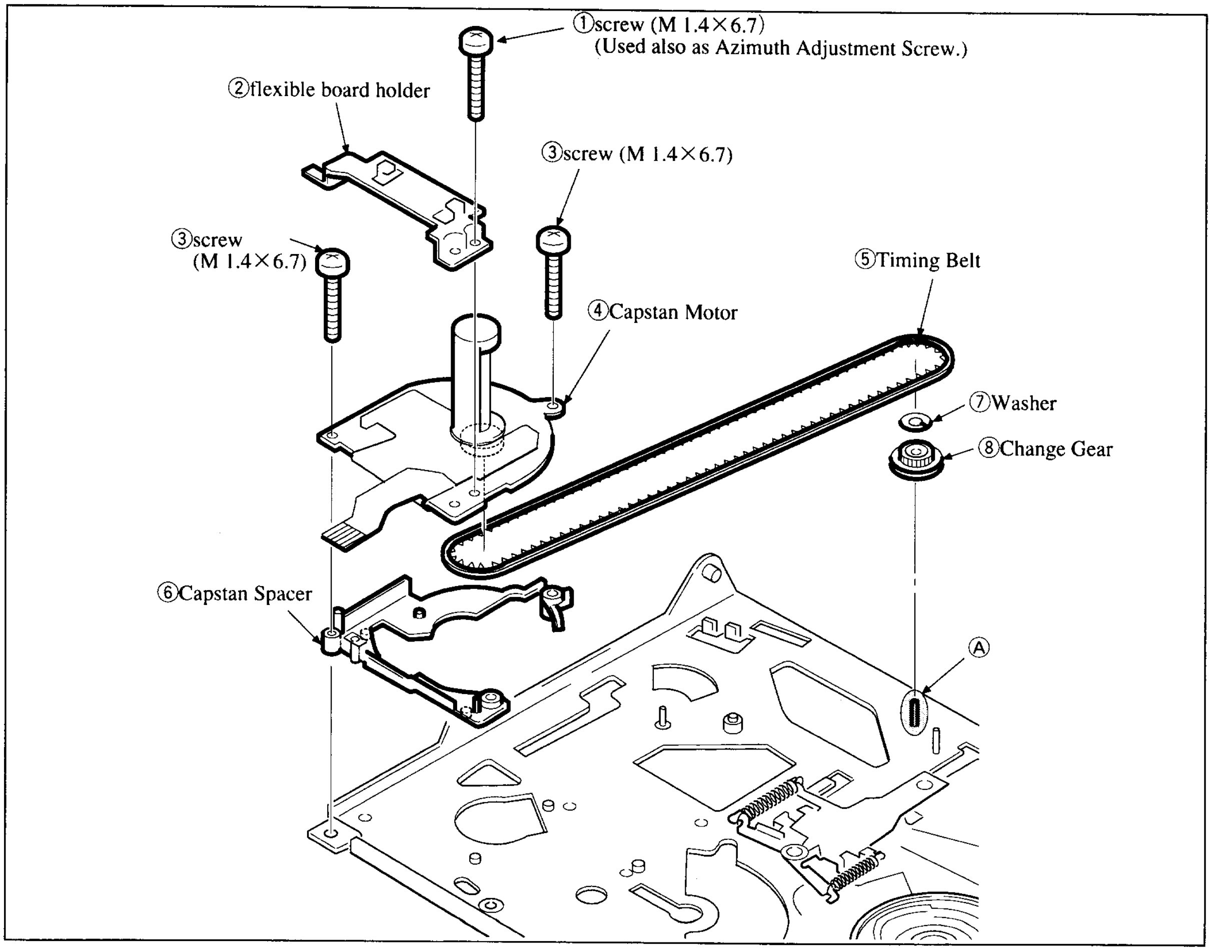

①screw (M 1.4×6.7)
(Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw
(M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

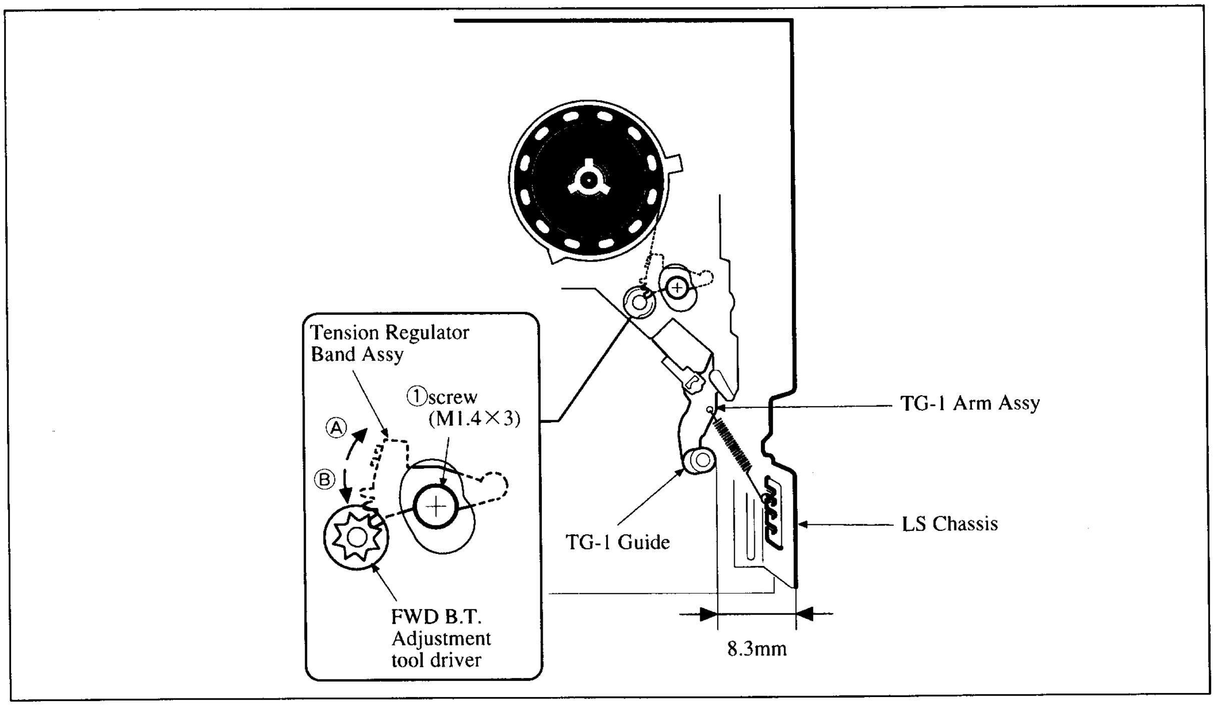

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Guide
TG-1 Arm Assy
LS Chassis
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

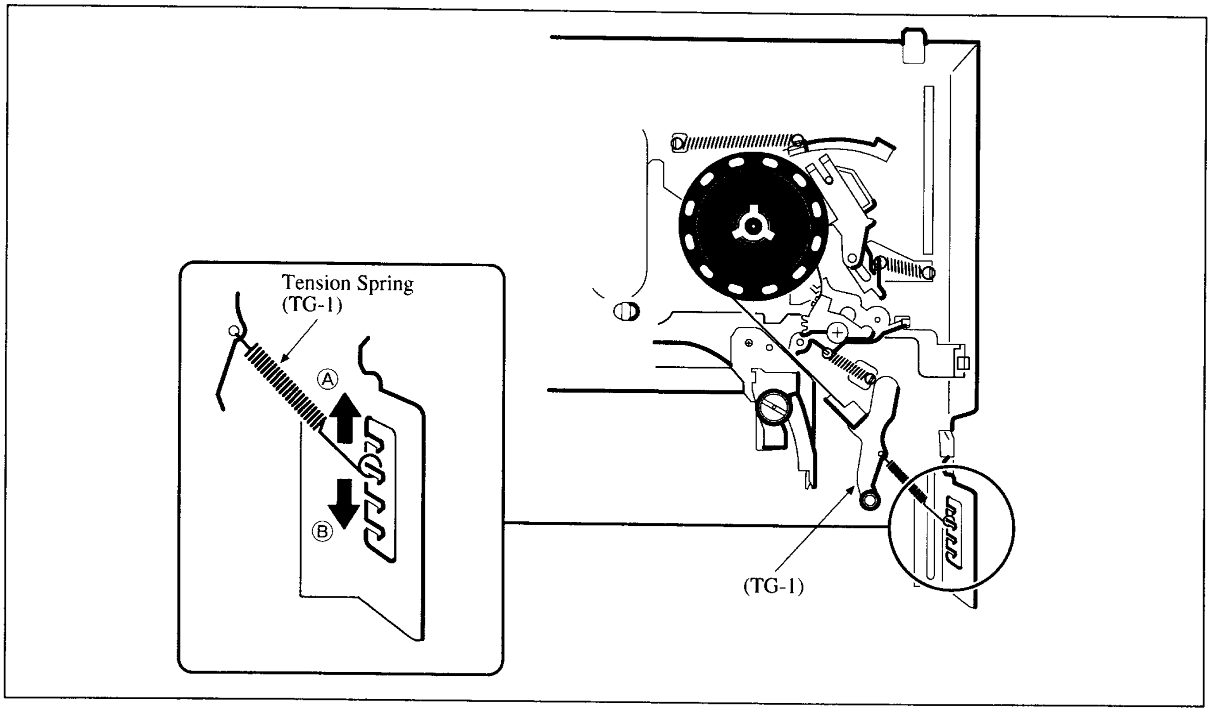


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose:	Adjusts the head linearity.
Adjustment Error:	Noise appears on top and bottom of display when playing back the tape recorded by other machines.

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

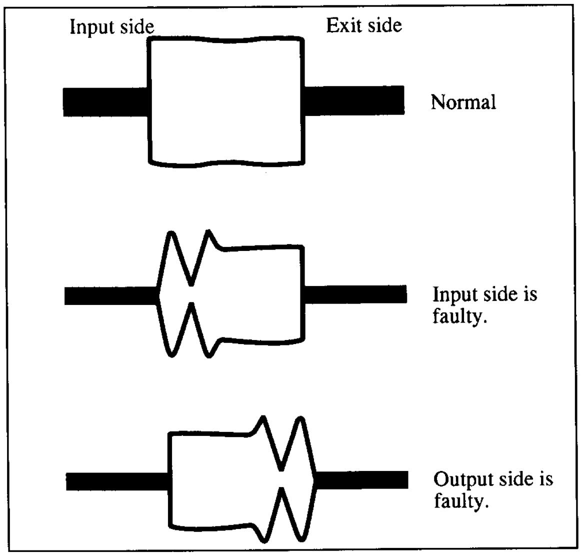


Fig. 26

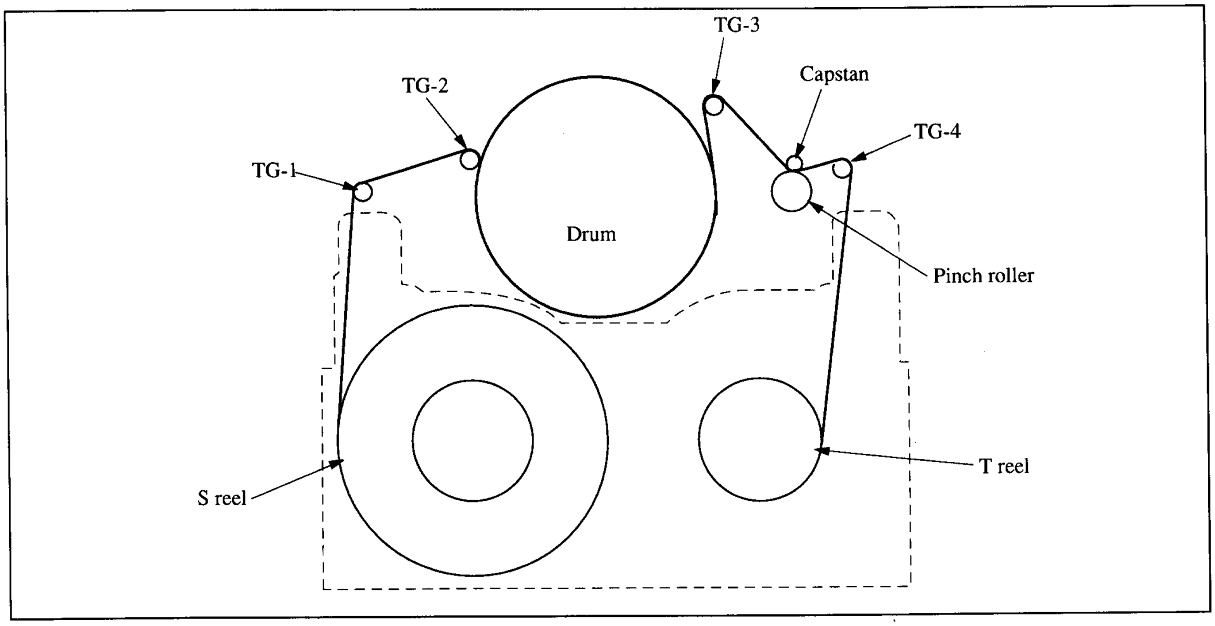


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

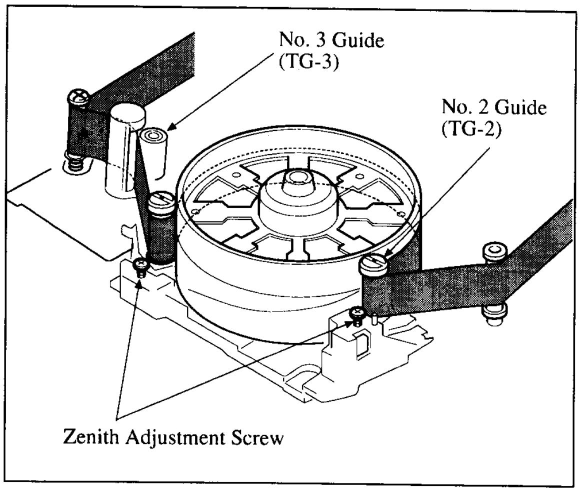


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

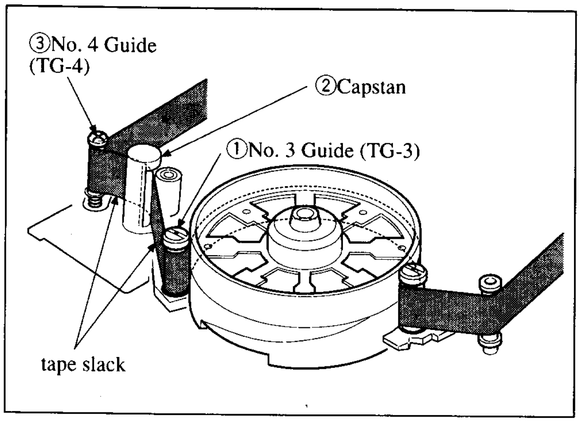


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

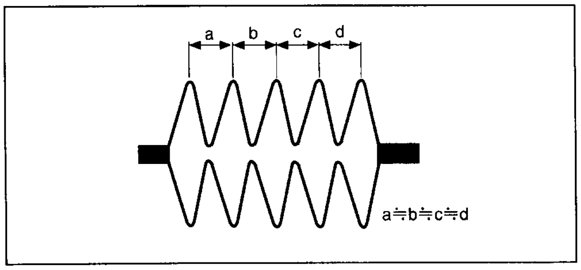


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

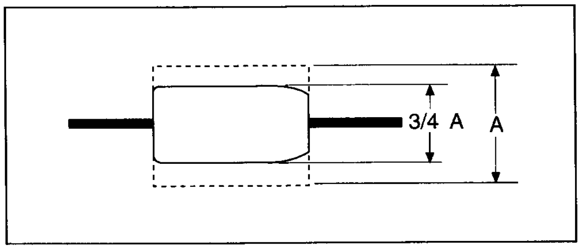


Fig. 31

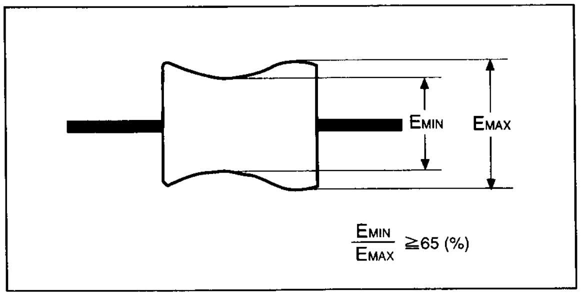


Fig. 32

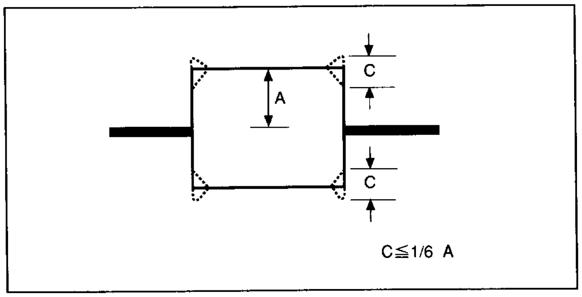


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

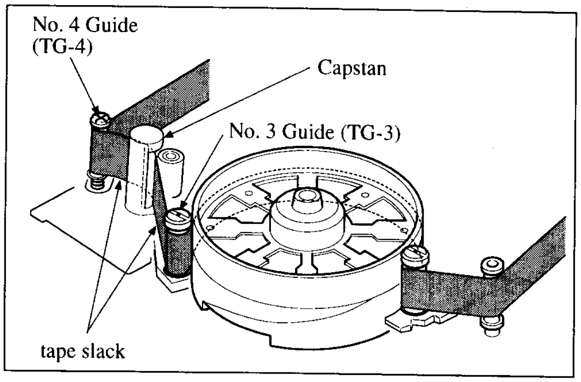


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

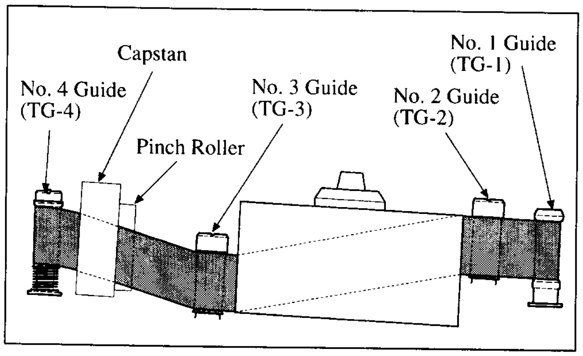
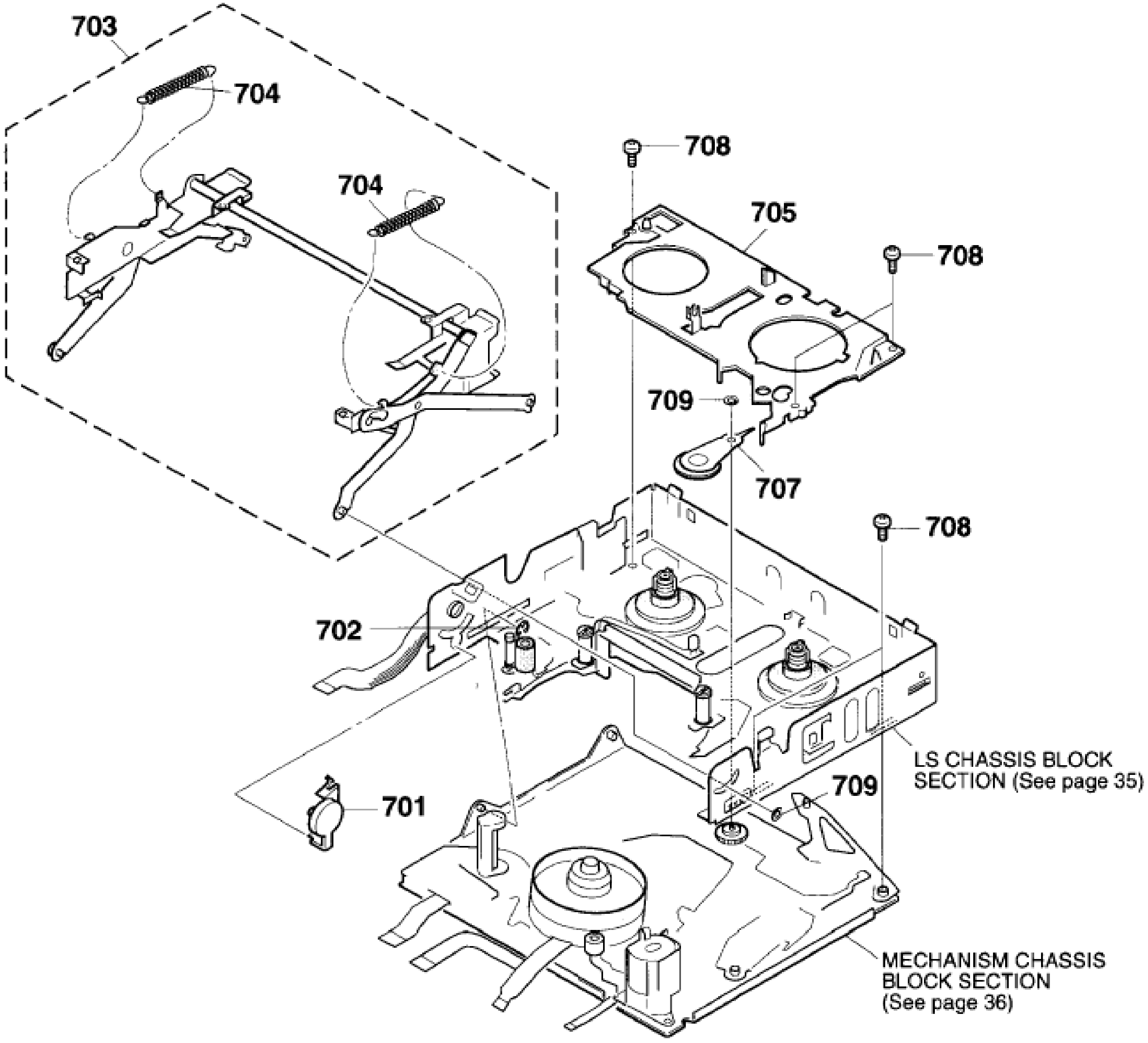


Fig. 35

5-1. Cassette Compartment Block Section


703
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702
LS CHASSIS BLOCK SECTION (See page 35)
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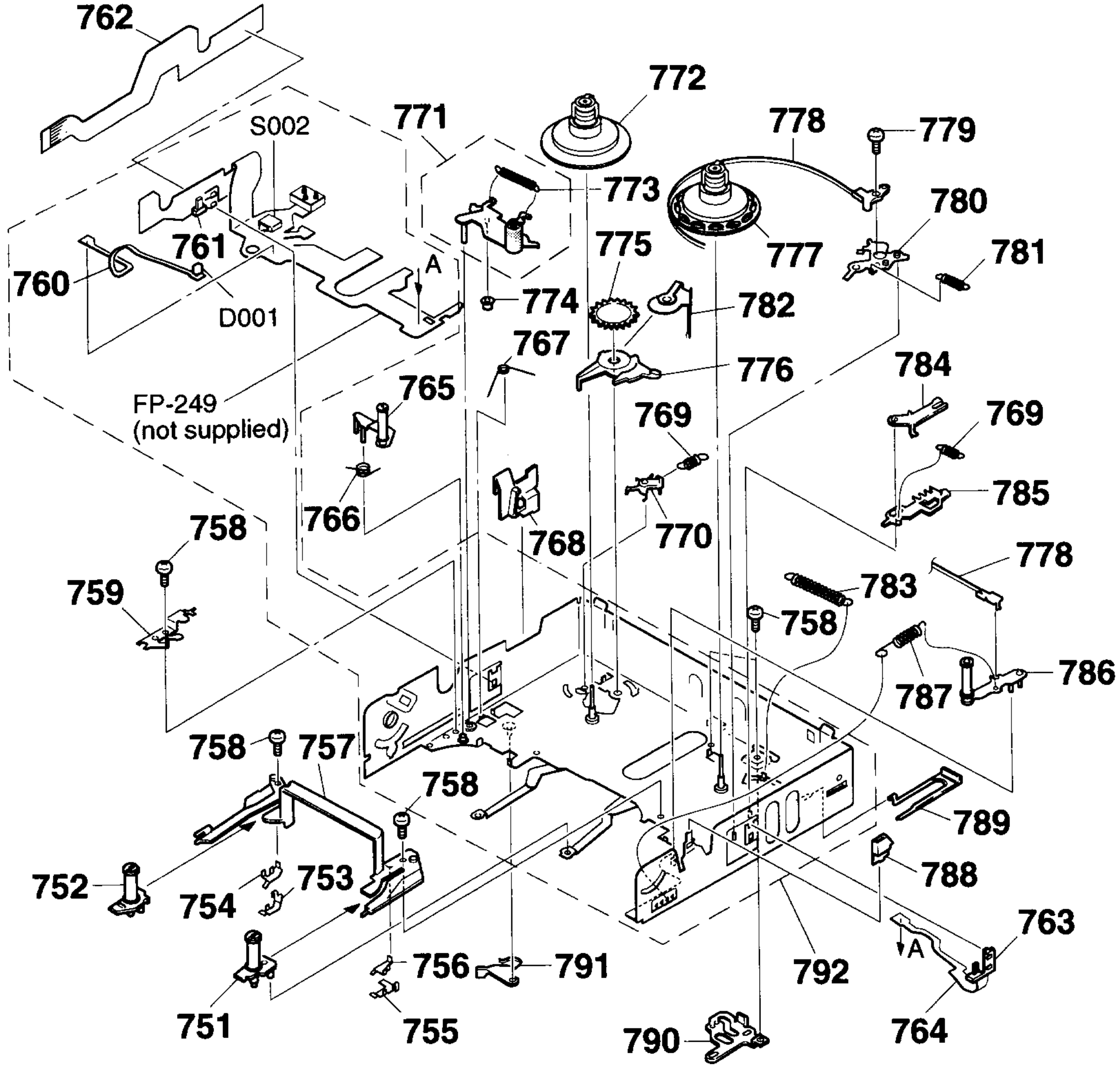
701
MECHANISM CHASSIS BLOCK SECTION (See page 36)

5-2. LS Chassis Block Section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FP-249
(not supplied)
765
769
784
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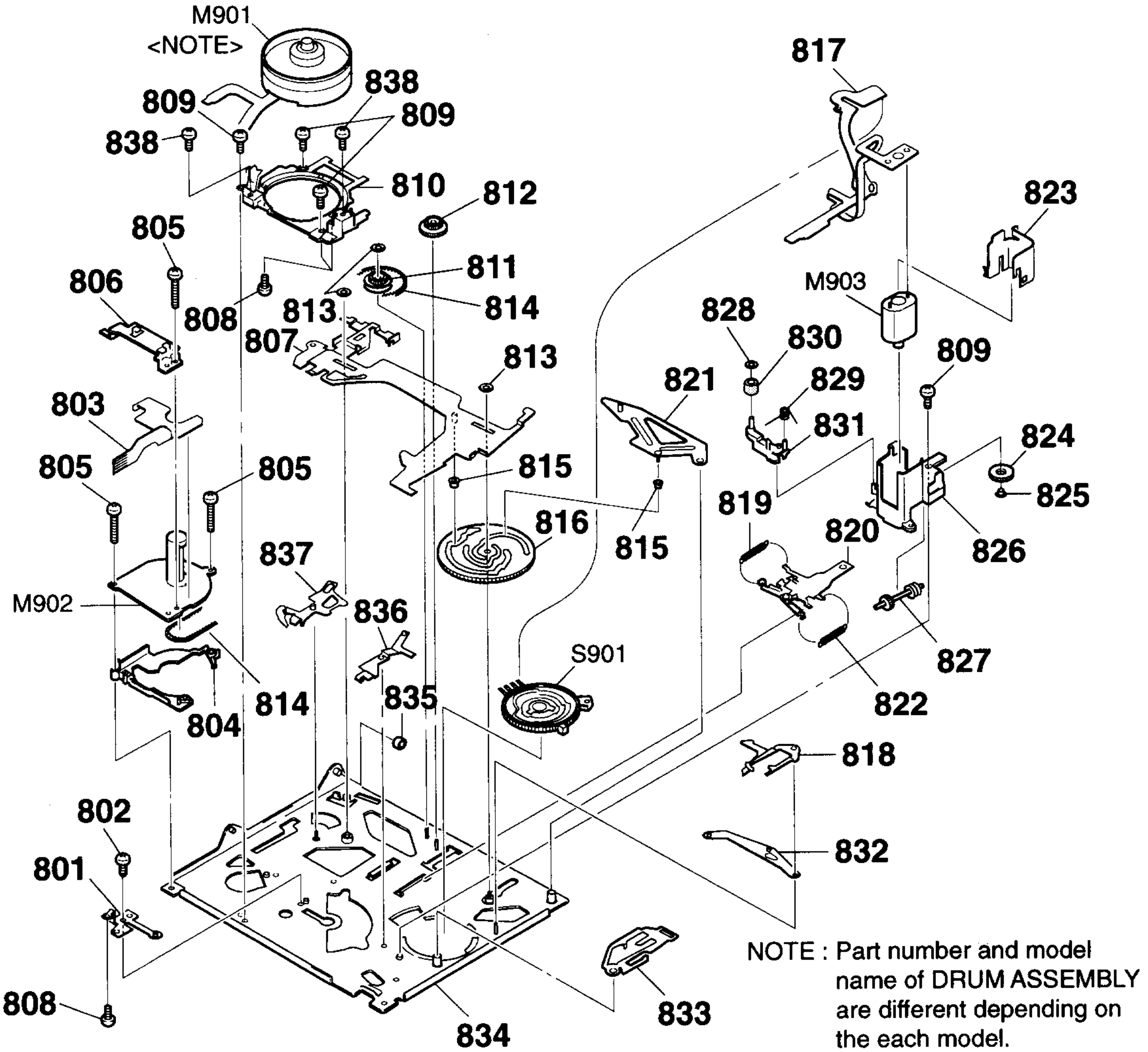
5-3. Mechanism Chassis Block Section


M901
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837
M902
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S901
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814
804
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802
832
801
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834
833

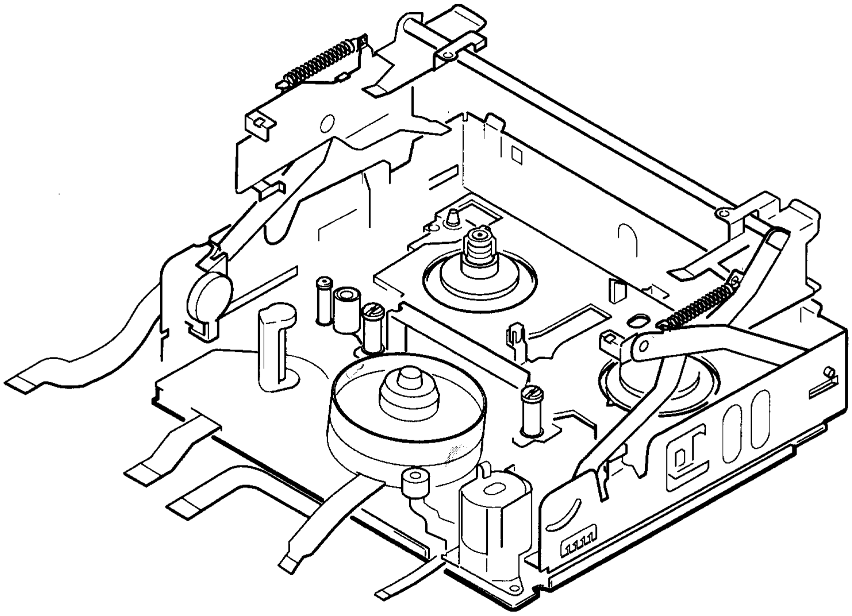
NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.

8mm Video MECHANICAL ADJUSTMENT MANUAL VII

B MECHANISM

Video8

Use this mechanical adjustment manual VII together with the service manual of the respective models.



MICROFILM

8 MECHANISM DECK

SONY®

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For the mode selector operation, schematic diagram and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.
To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.
The mechanisms are adjusted while set in the USE mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the USE mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to USE mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

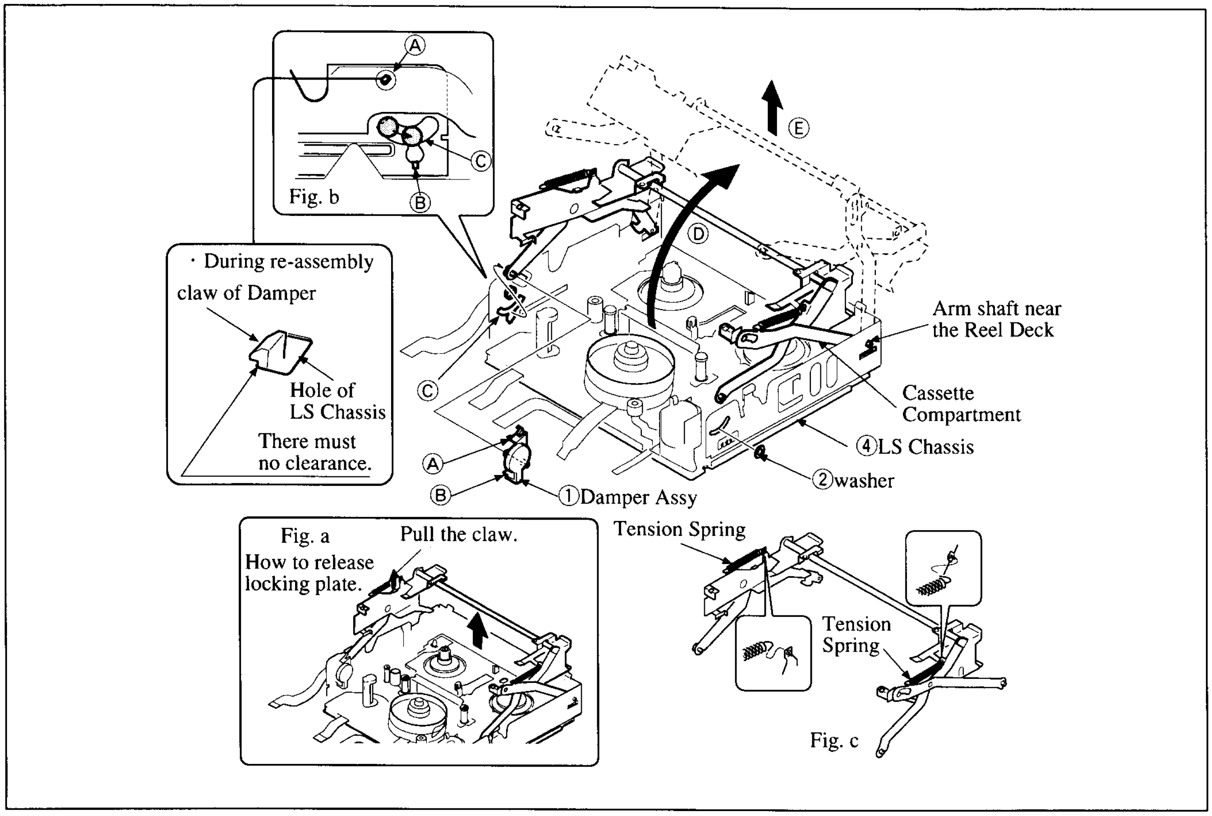

Ⓐ
Ⓒ
Fig. b
Ⓑ
Ⓔ
Ⓓ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Ⓒ
Ⓐ
Ⓑ
①Damper Assy
Arm shaft near
the Reel Deck
Cassette
Compartment
④LS Chassis
②washer
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

> Example of establishing the TEST mode: model CCD-TR420E/TR440E.
> Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.
> Select page: 7, address: 01, set data: 01 and press the PAUSE button.
> After tape loading or other desired operations of mechanism are completed, be sure to perform the following:
> Select page: F, address: 01, set data :00 and press the PAUSE button.
> Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

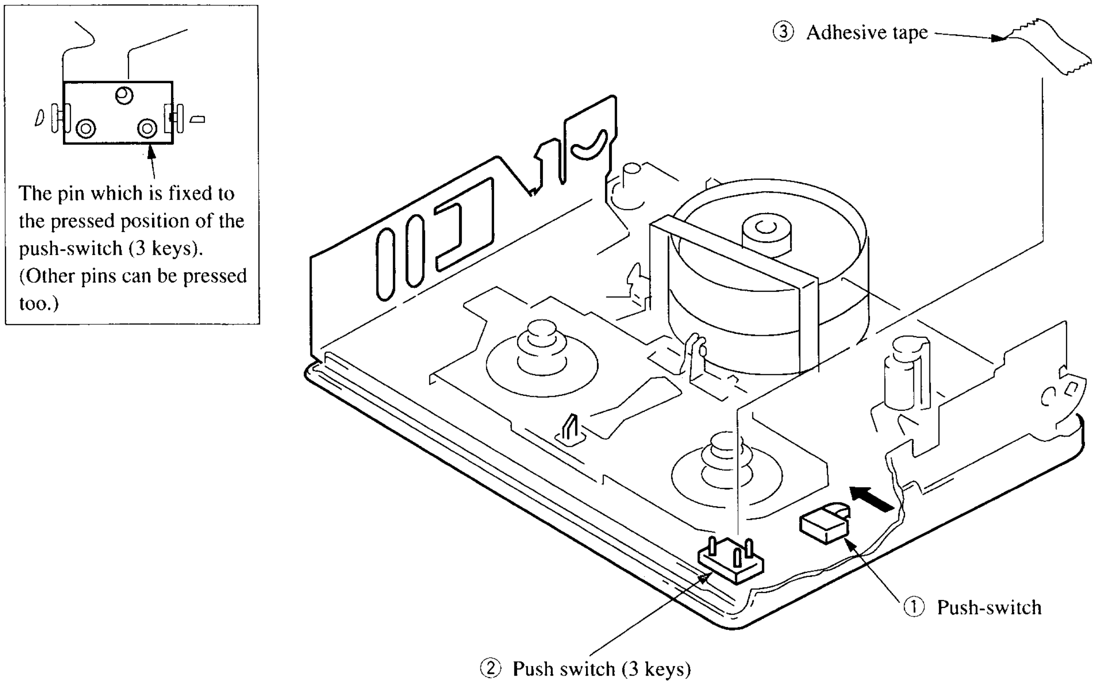

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)
③ Adhesive tape
① Push-switch
② Push switch (3 keys)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

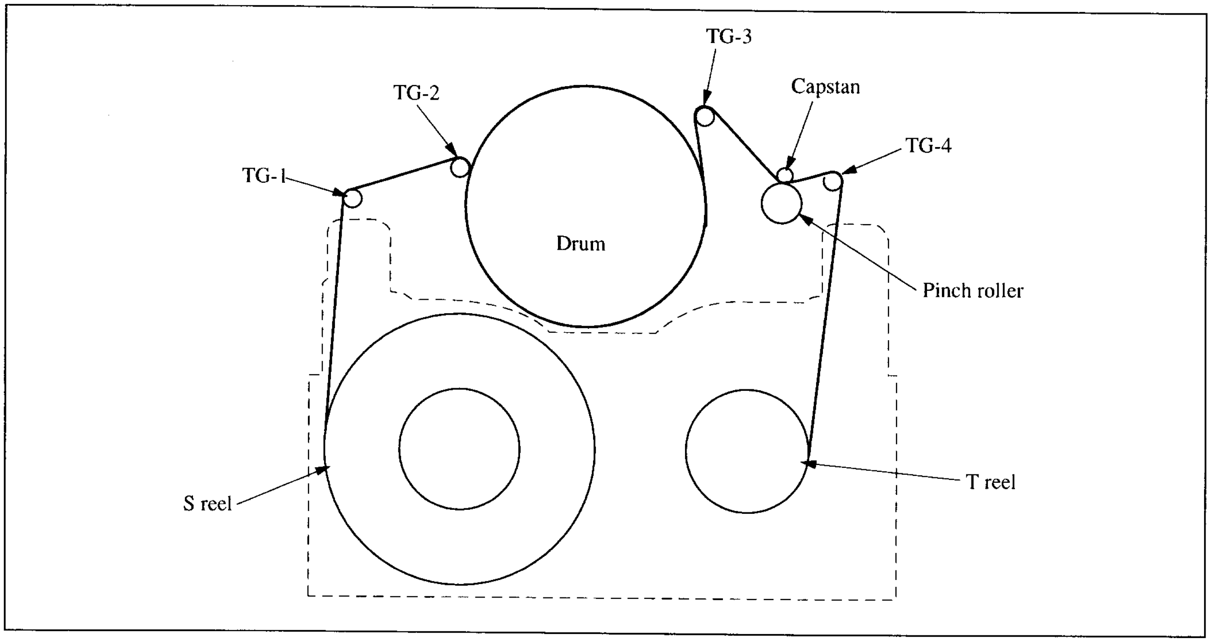


Fig. 3

2-3. Periodic Check Items

	Maintenance and Inspection Points	Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD / RVS Torque Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

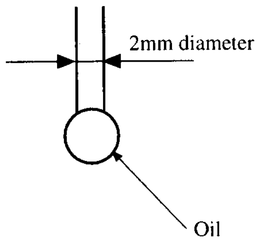


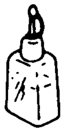
Fig. 4

2-4. Service Tool List

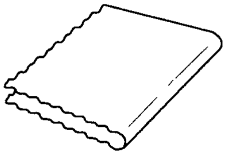
Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Cleaning piece	2-034-697-00	—	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		—	
J-4	Head demagnetizer	Commercially available	—	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	—	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	—	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	—	
J-10	Remote commander for adjustment	J-6082-053-B	—	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	—	
J-12	FLOIL Grease SG-941	7-662-001-39	—	
J-13	FLOIL Grease SG-055G	7-651-000-09	—	

Other equipment
- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

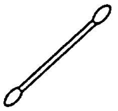
J-1



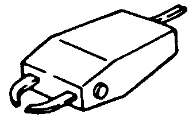
J-2



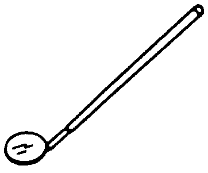
J-3



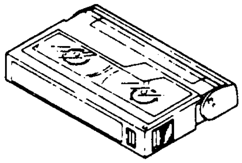
J-4



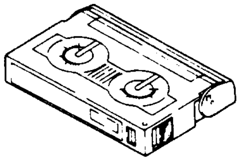
J-5



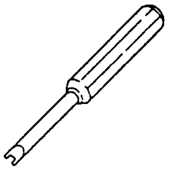
J-6



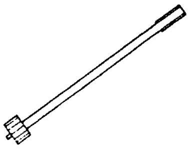
J-7



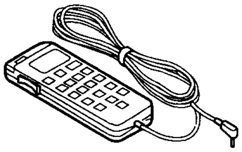
J-8



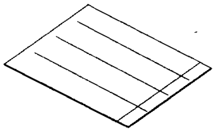
J-9



J-10

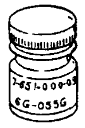


J-11



J-12

J-13



3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

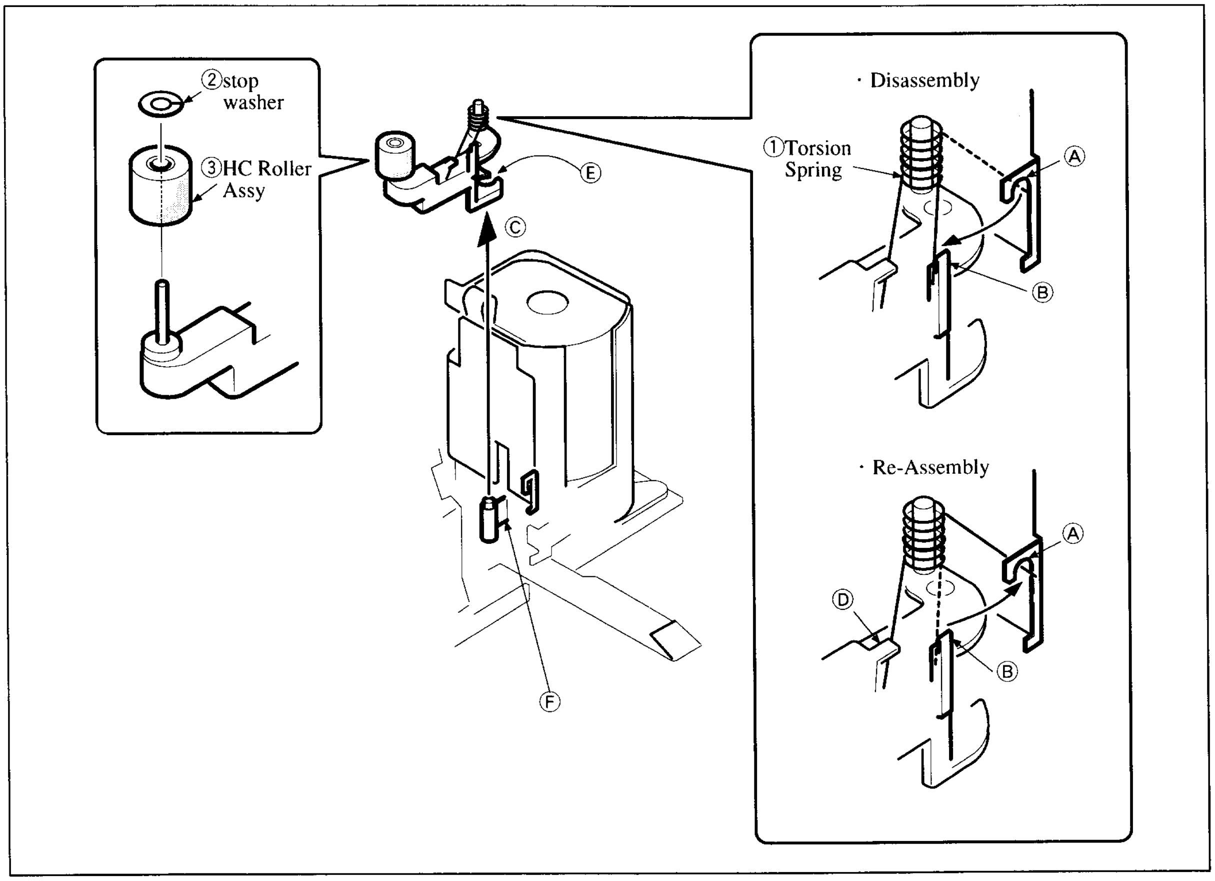

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓐ
Ⓓ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to USE mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

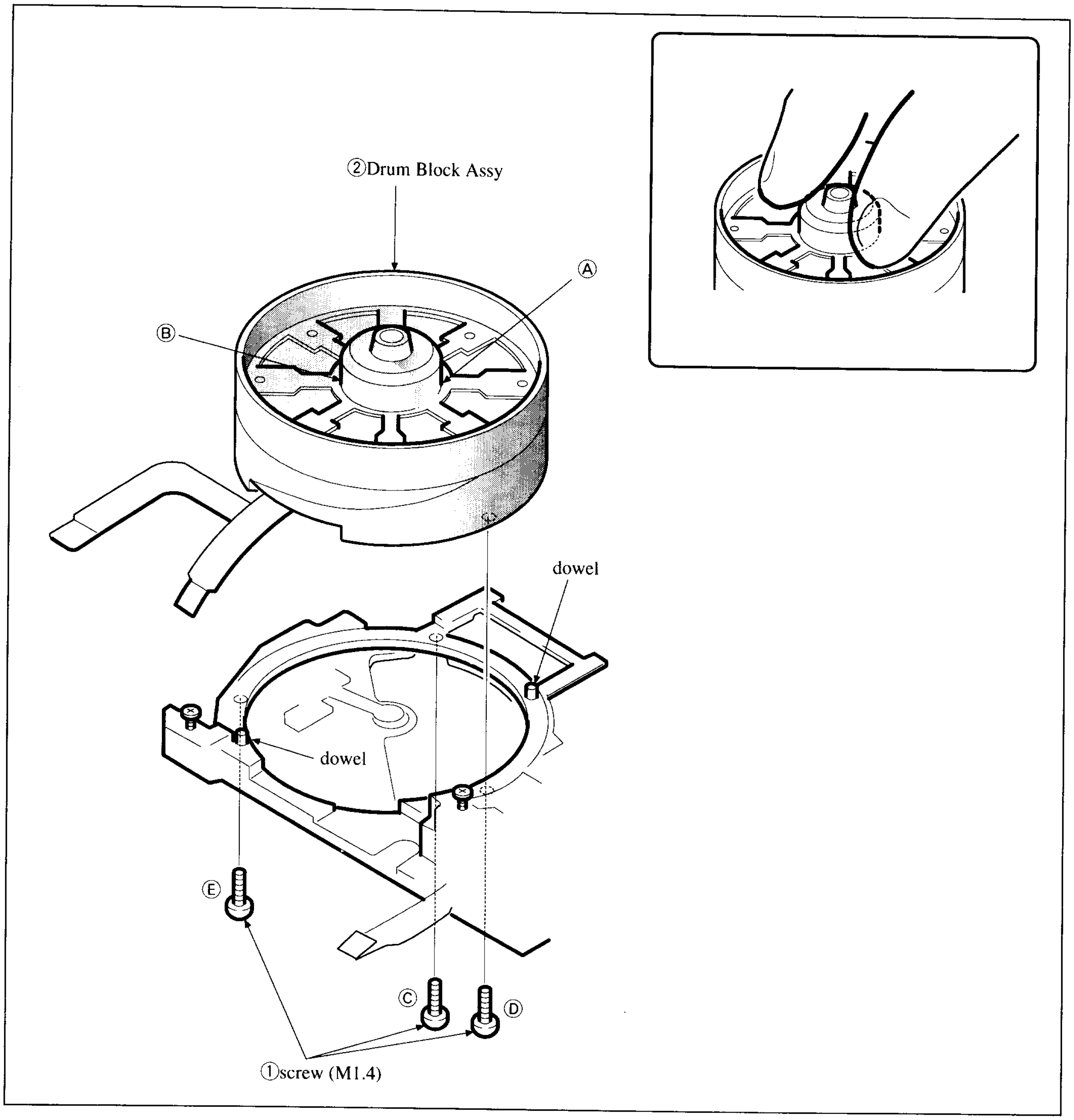


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

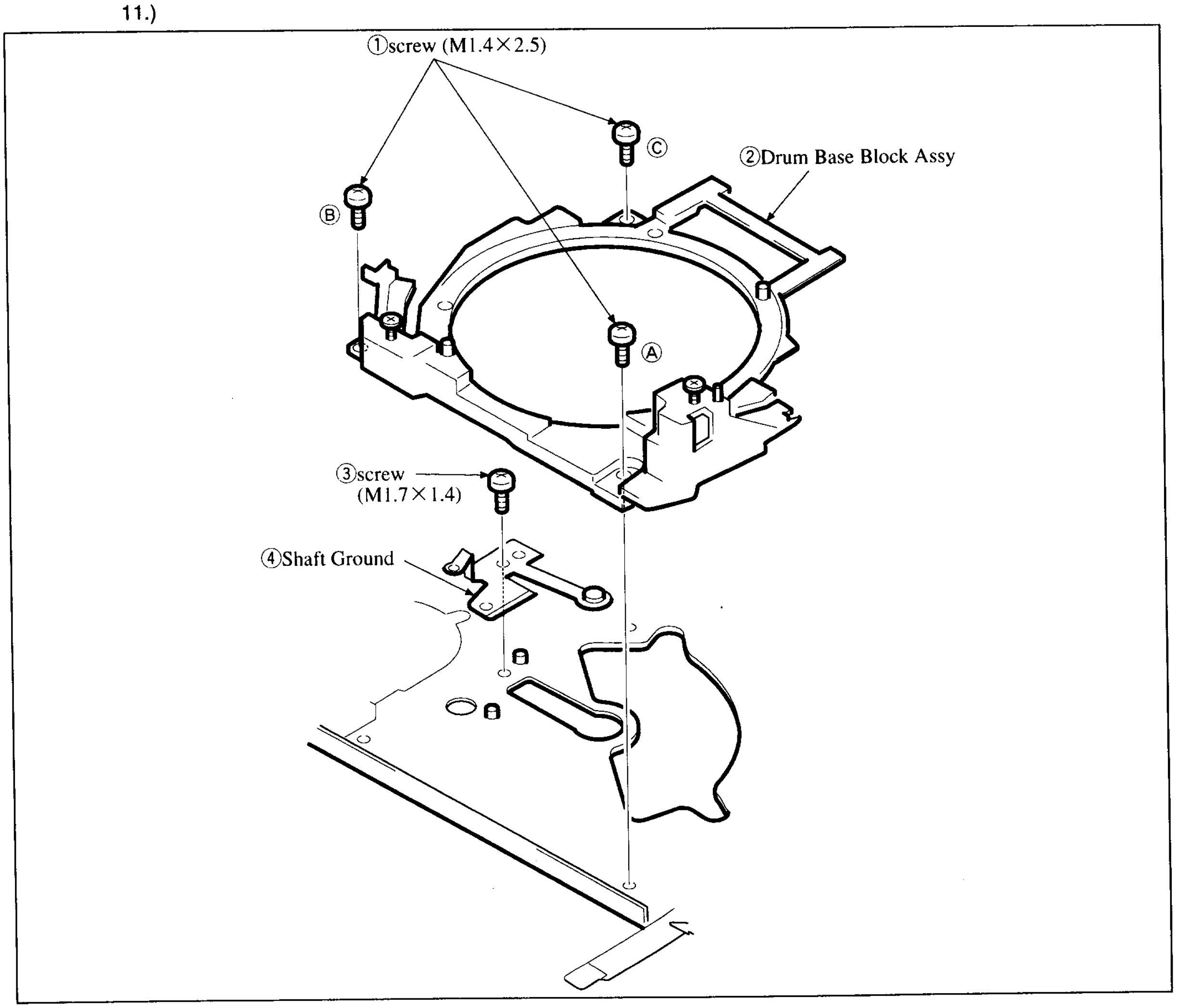


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
(Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.

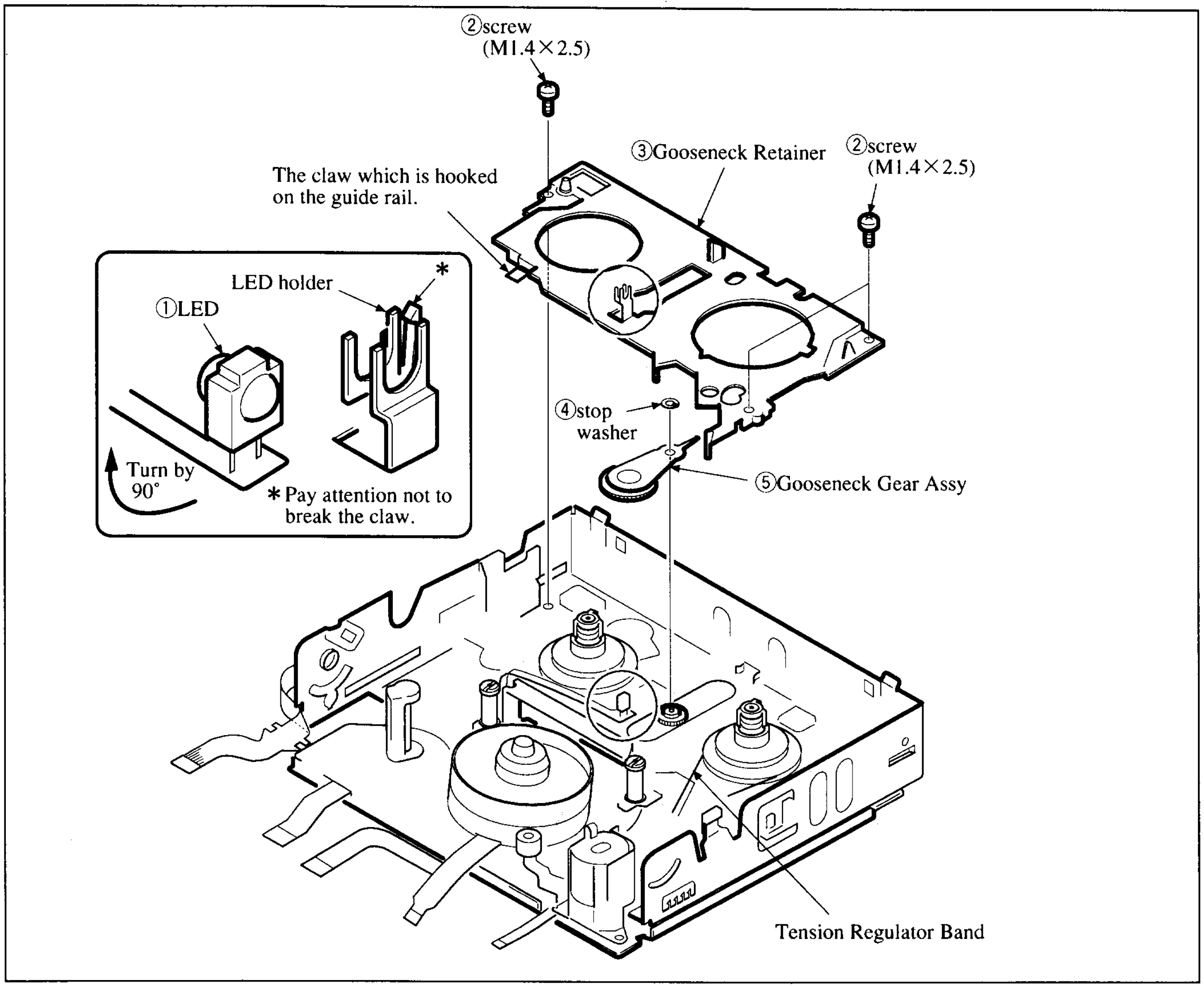

②screw (M1.4×2.5)
③Gooseneck Retainer
②screw (M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
④stop washer
⑤Gooseneck Gear Assy
Turn by 90°
* Pay attention not to break the claw.
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

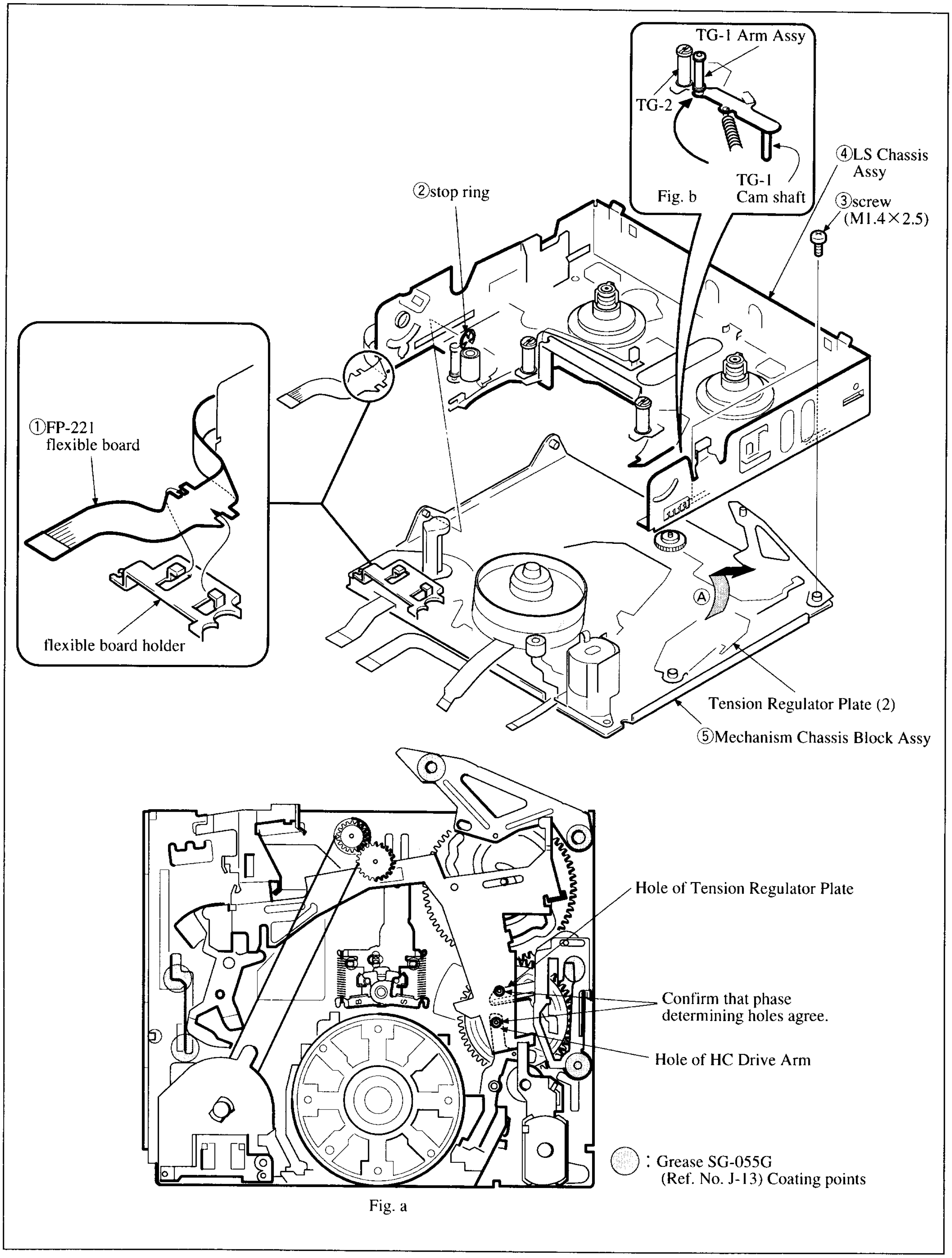
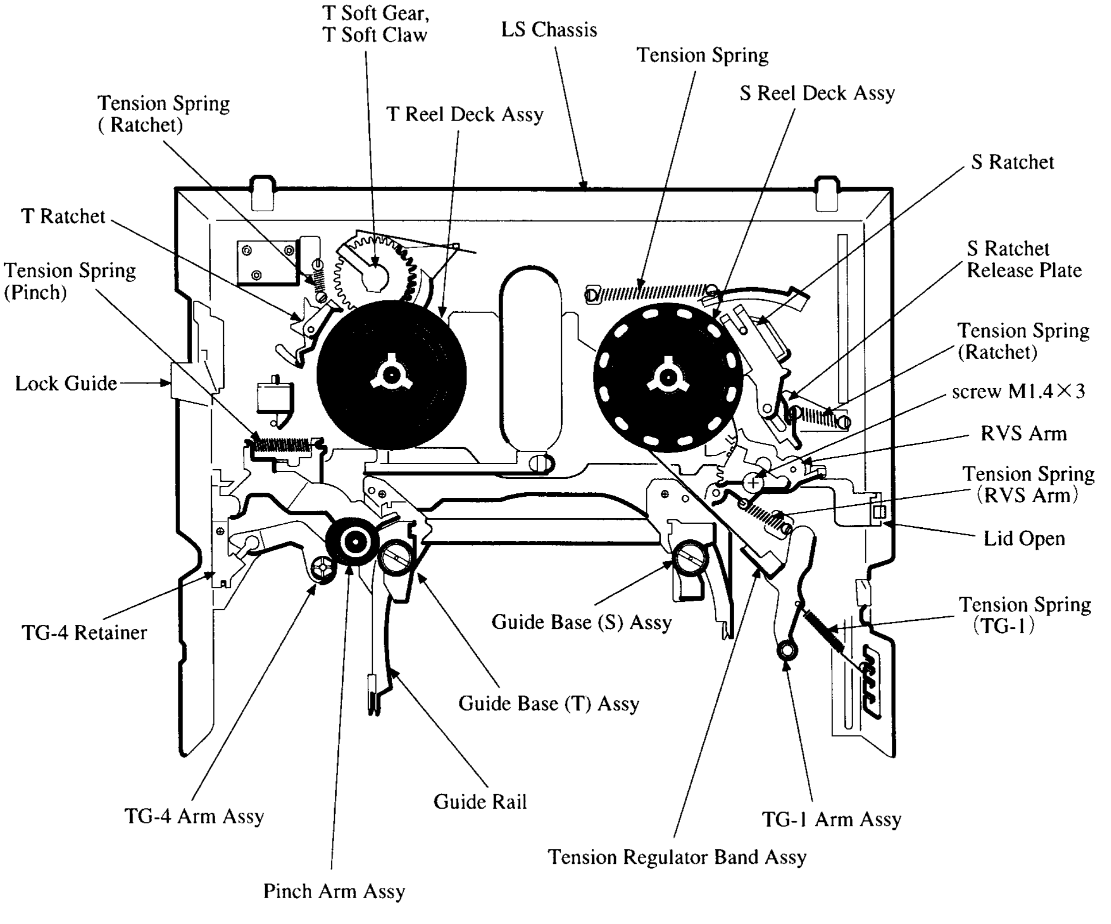

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
④LS Chassis Assy
②stop ring
③screw (M1.4×2.5)
①FP-221 flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase determining holes agree.
Hole of HC Drive Arm
: Grease SG-055G (Ref. No. J-13) Coating points

Fig. b

Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**



T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
S Ratchet
Release Plate
Tension Spring
(Pinch)
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
Tension Spring
(TG-1)
TG-4 Retainer
Guide Base (S) Assy
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it .
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it .

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

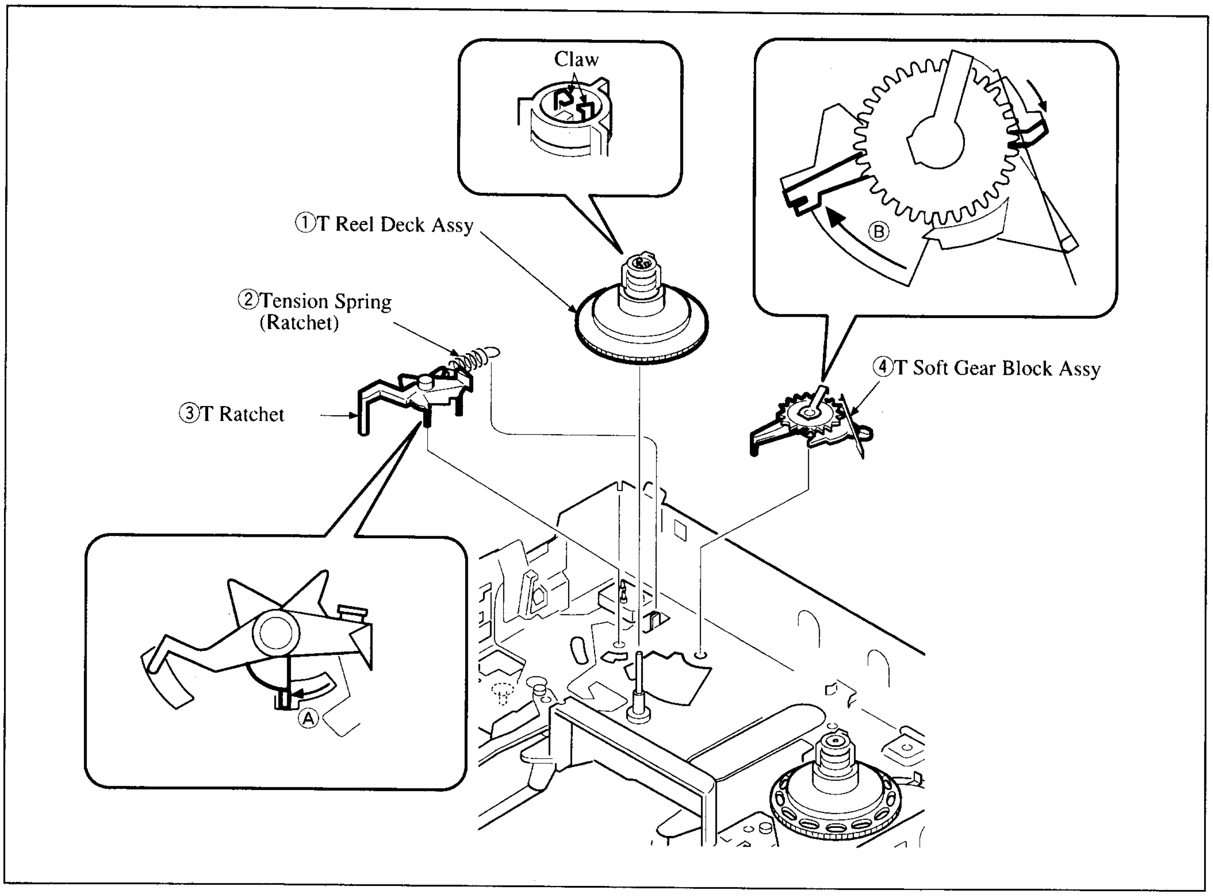


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

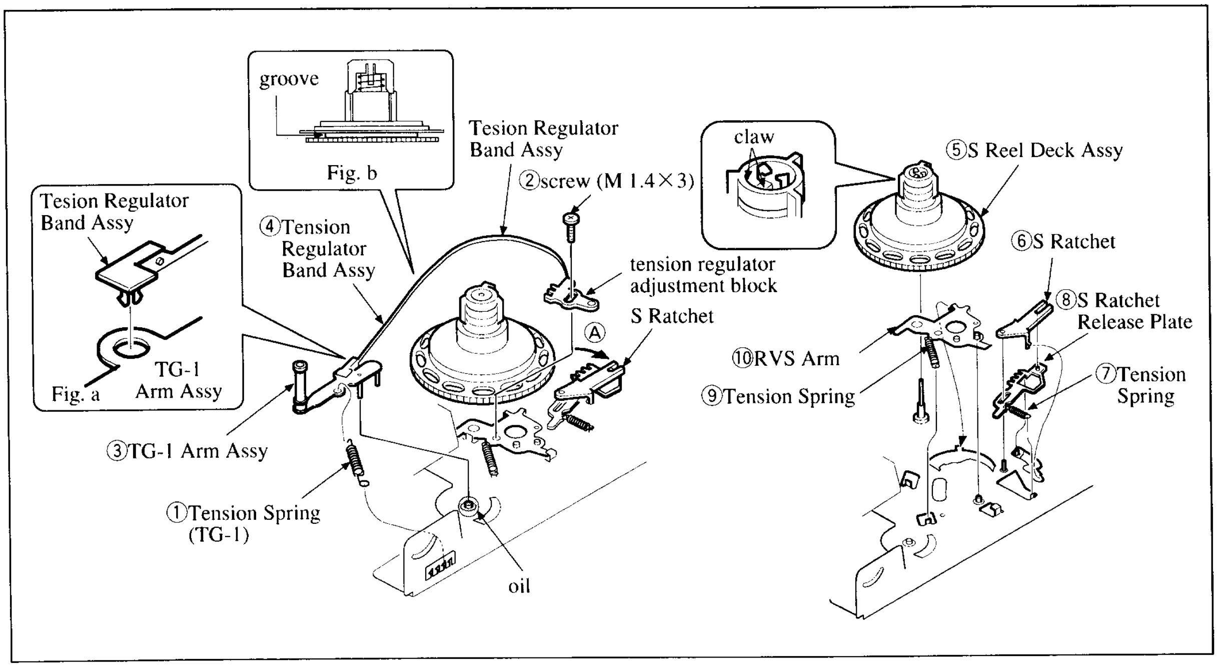

groove
Fig. b
Tesion Regulator Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
Tesion Regulator Band Assy
④Tension Regulator Band Assy
⑥S Ratchet
tension regulator adjustment block
S Ratchet
Ⓐ
⑧S Ratchet Release Plate
TG-1 Arm Assy
Fig. a
⑩RVS Arm
⑨Tension Spring
⑦Tension Spring
③TG-1 Arm Assy
①Tension Spring (TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

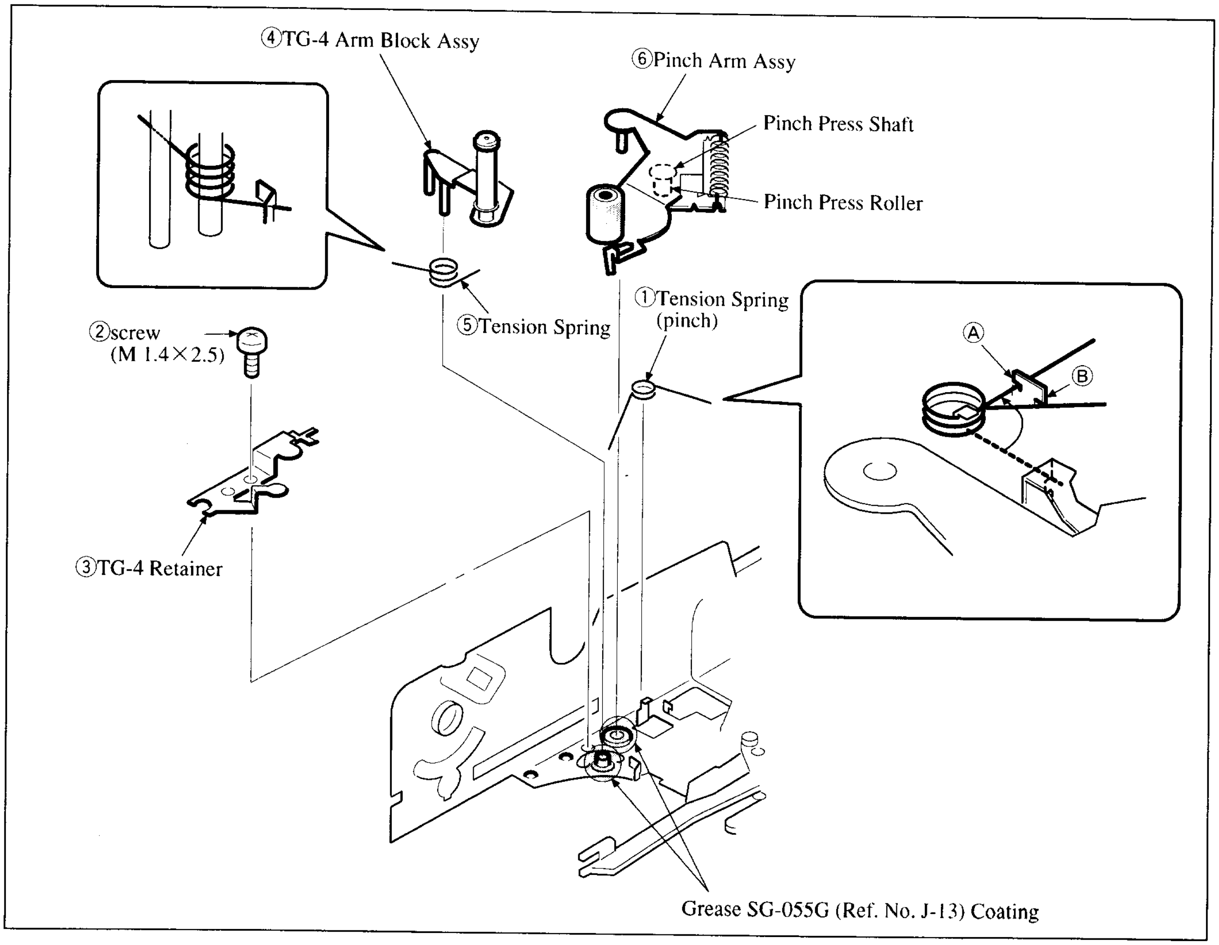

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
⑤Tension Spring
①Tension Spring (pinch)
②screw (M 1.4×2.5)
Ⓐ
Ⓑ
③TG-4 Retainer
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide
(Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
   In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.

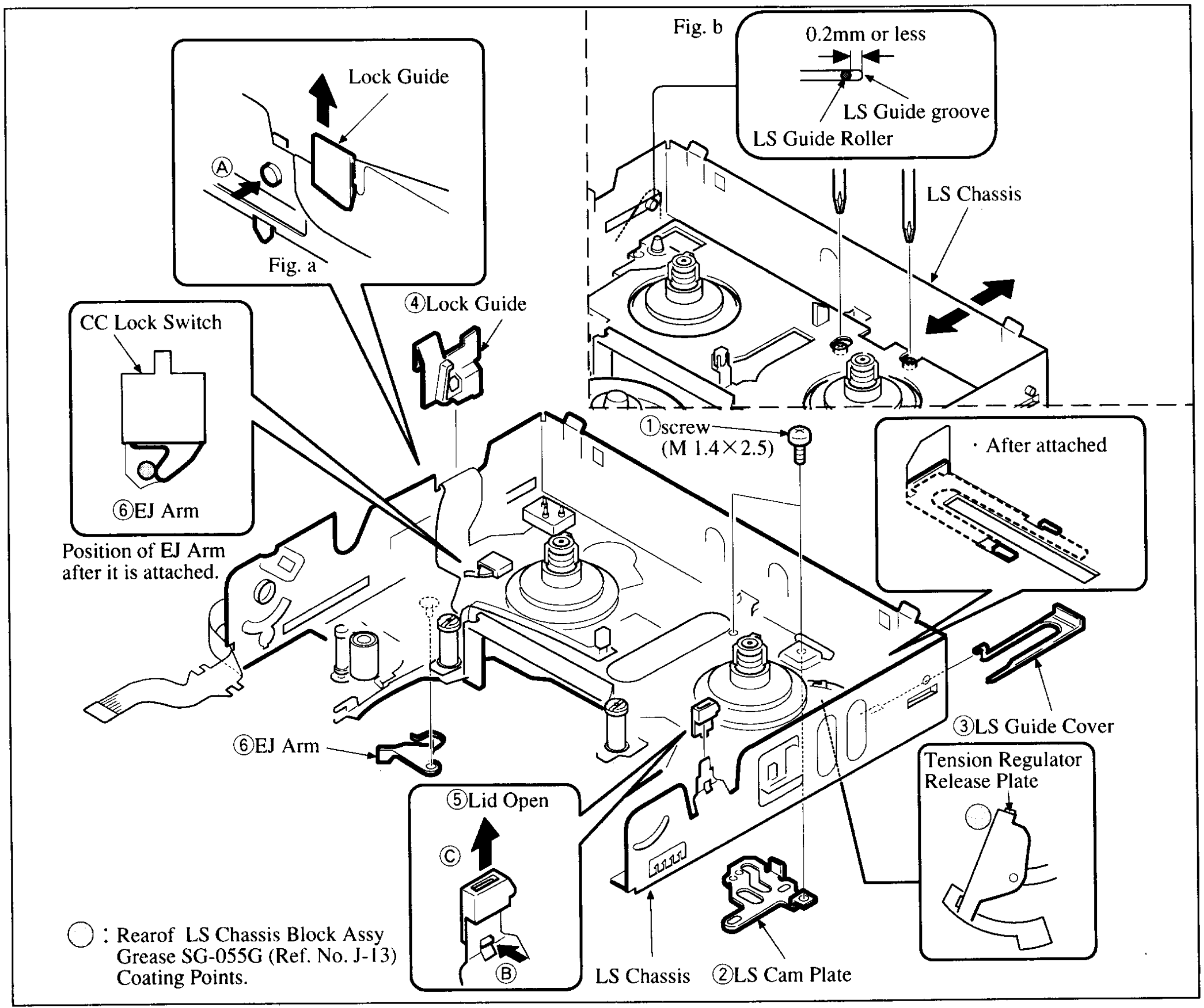

Lock Guide
Ⓐ
Fig. a
④Lock Guide
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
①screw (M 1.4×2.5)
· After attached
③LS Guide Cover
Tension Regulator Release Plate
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.
LS Chassis
②LS Cam Plate

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

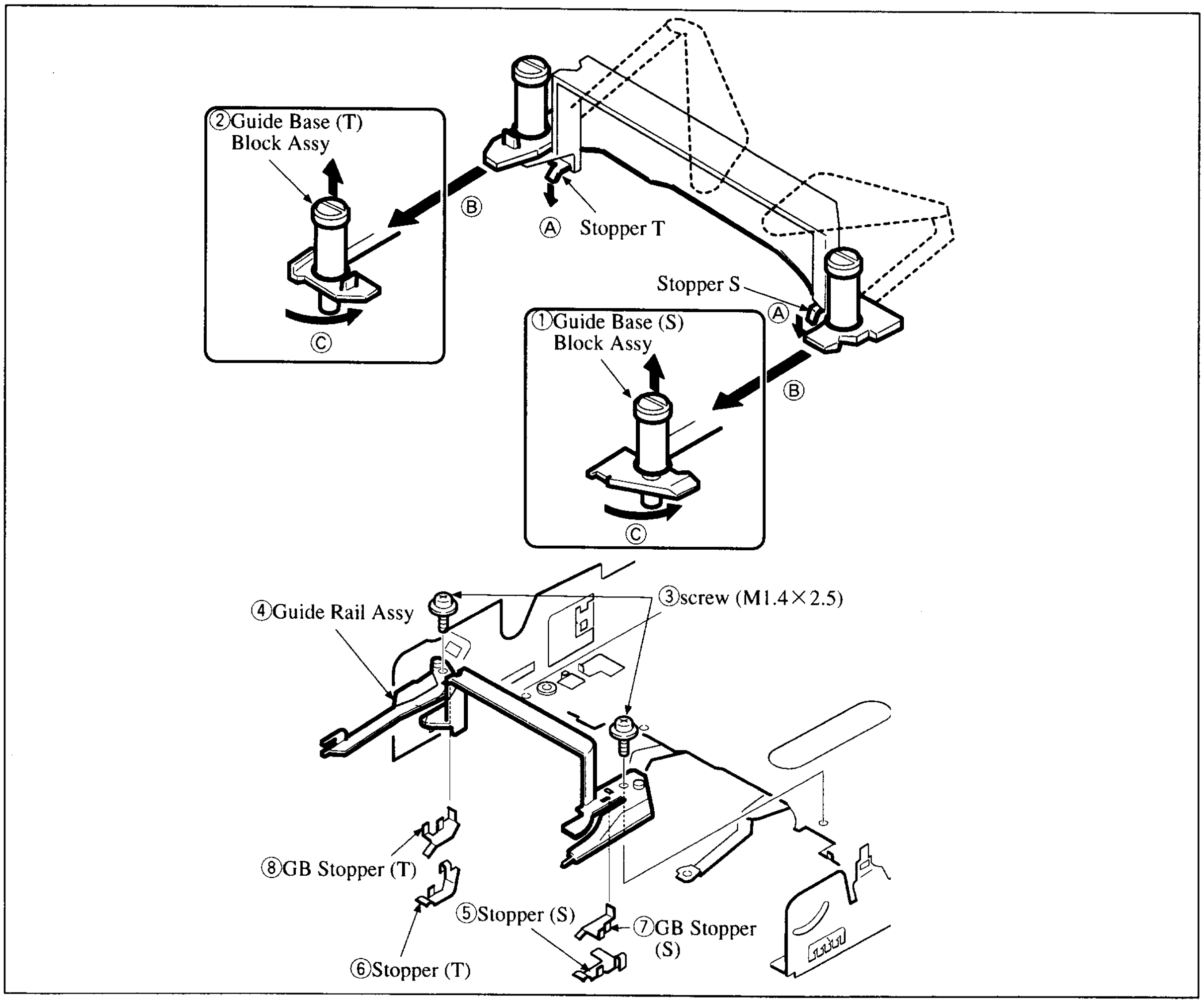

②Guide Base (T)
Block Assy
Ⓑ
Ⓐ Stopper T
Ⓒ
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper
(S)
⑥Stopper (T)

Fig. 15

• PARTS CONSTITUTING THE MECHANISM CHASSIS

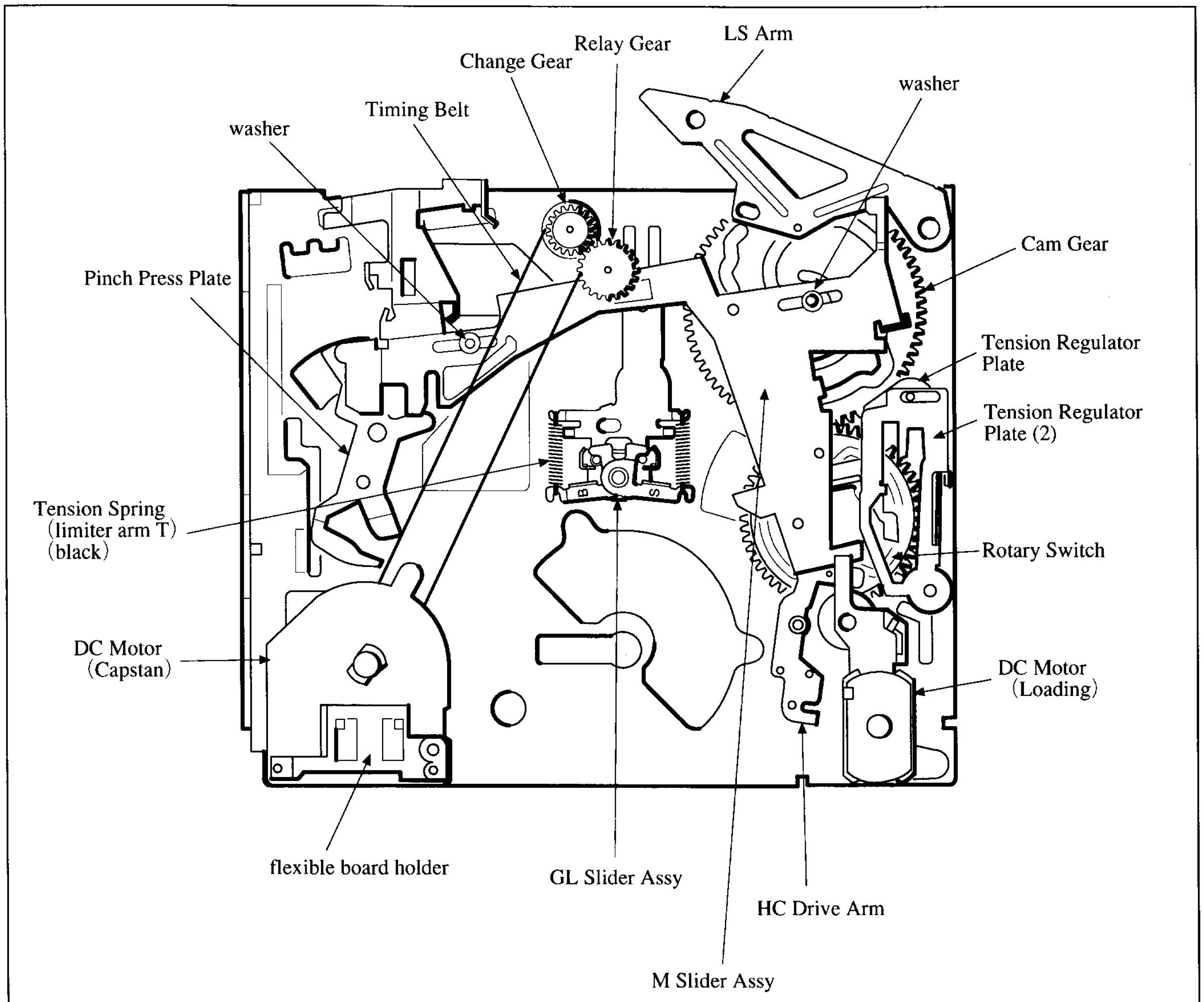

Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

3-11. DC Motor Assy (Loading)
(Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.

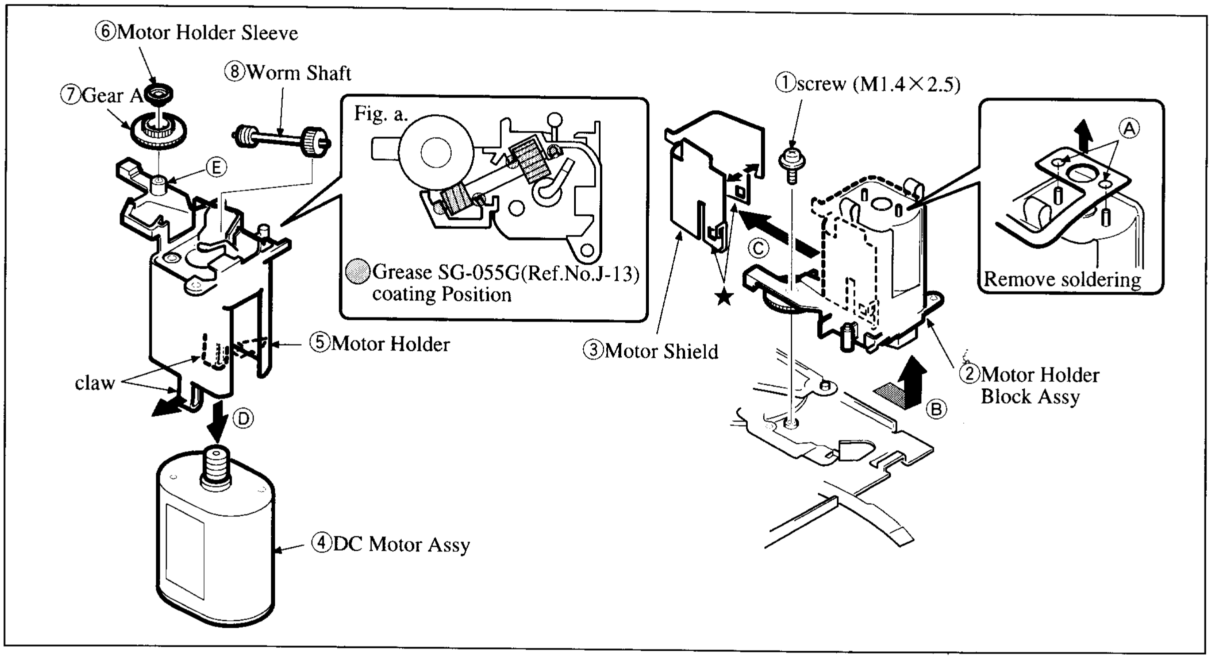

⑥Motor Holder Sleeve
⑧Worm Shaft
⑦Gear A
Ⓔ
Fig. a.
Grease SG-055G(Ref.No.J-13) coating Position
①screw (M1.4×2.5)
Ⓐ
Remove soldering
Ⓒ
★
⑤Motor Holder
③Motor Shield
claw
Ⓓ
②Motor Holder Block Assy
Ⓑ
④DC Motor Assy

Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk * Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).

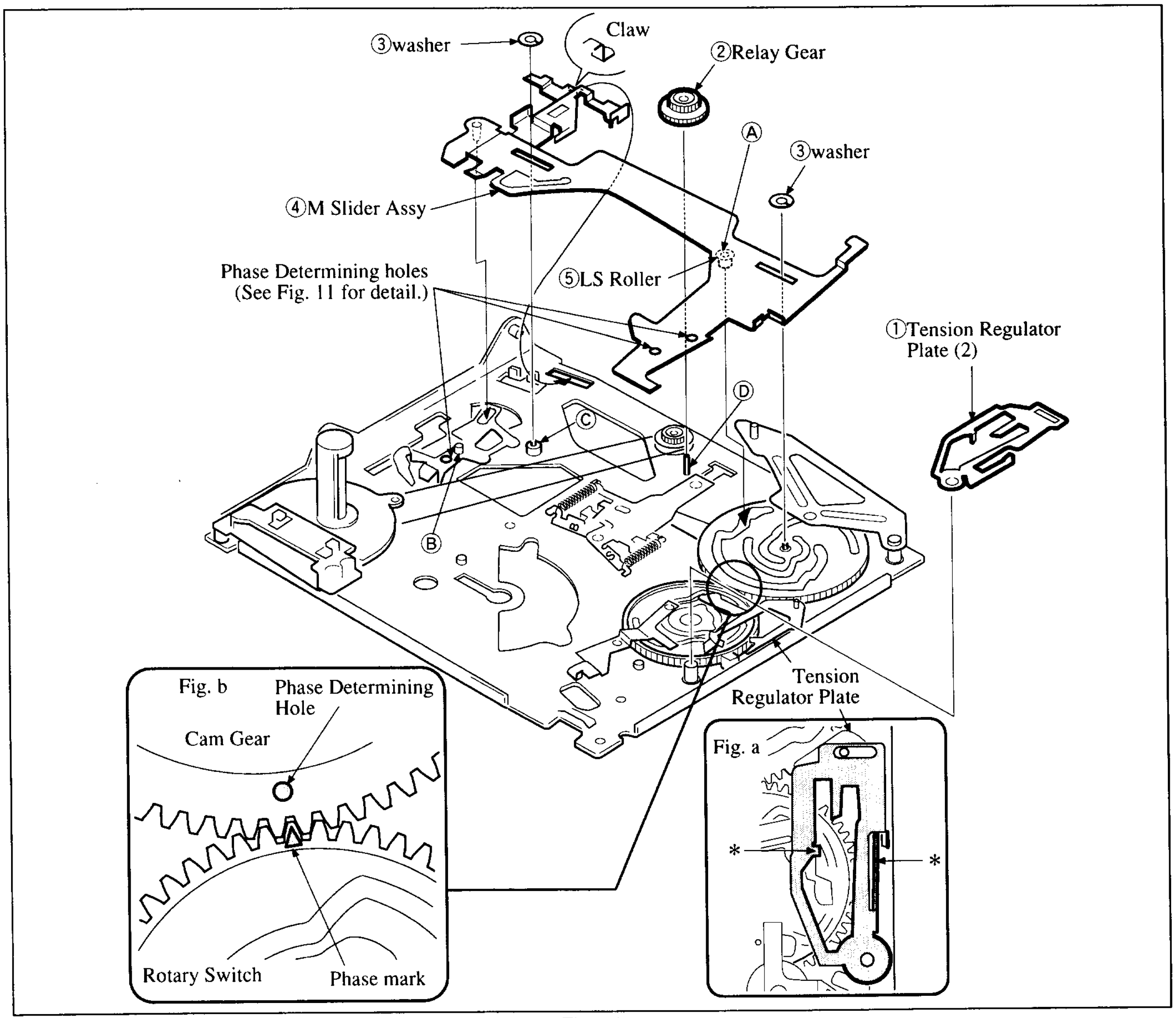

③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes
(See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator
Plate (2)
Ⓓ
Ⓒ
Ⓑ
Tension
Regulator Plate
Fig. a
*
*
Fig. b
Phase Determining
Hole
Cam Gear
Rotary Switch
Phase mark

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

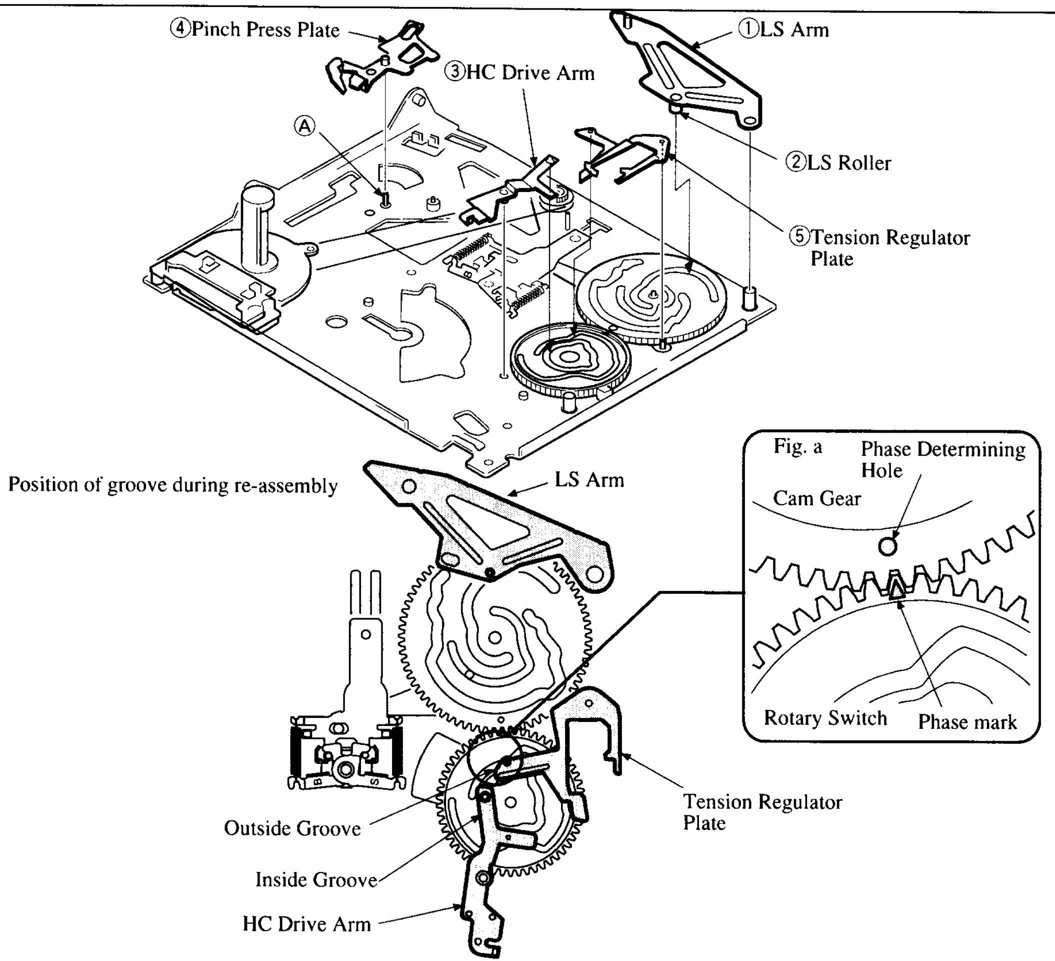

④Pinch Press Plate
③HC Drive Arm
①LS Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Position of groove during re-assembly
LS Arm
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

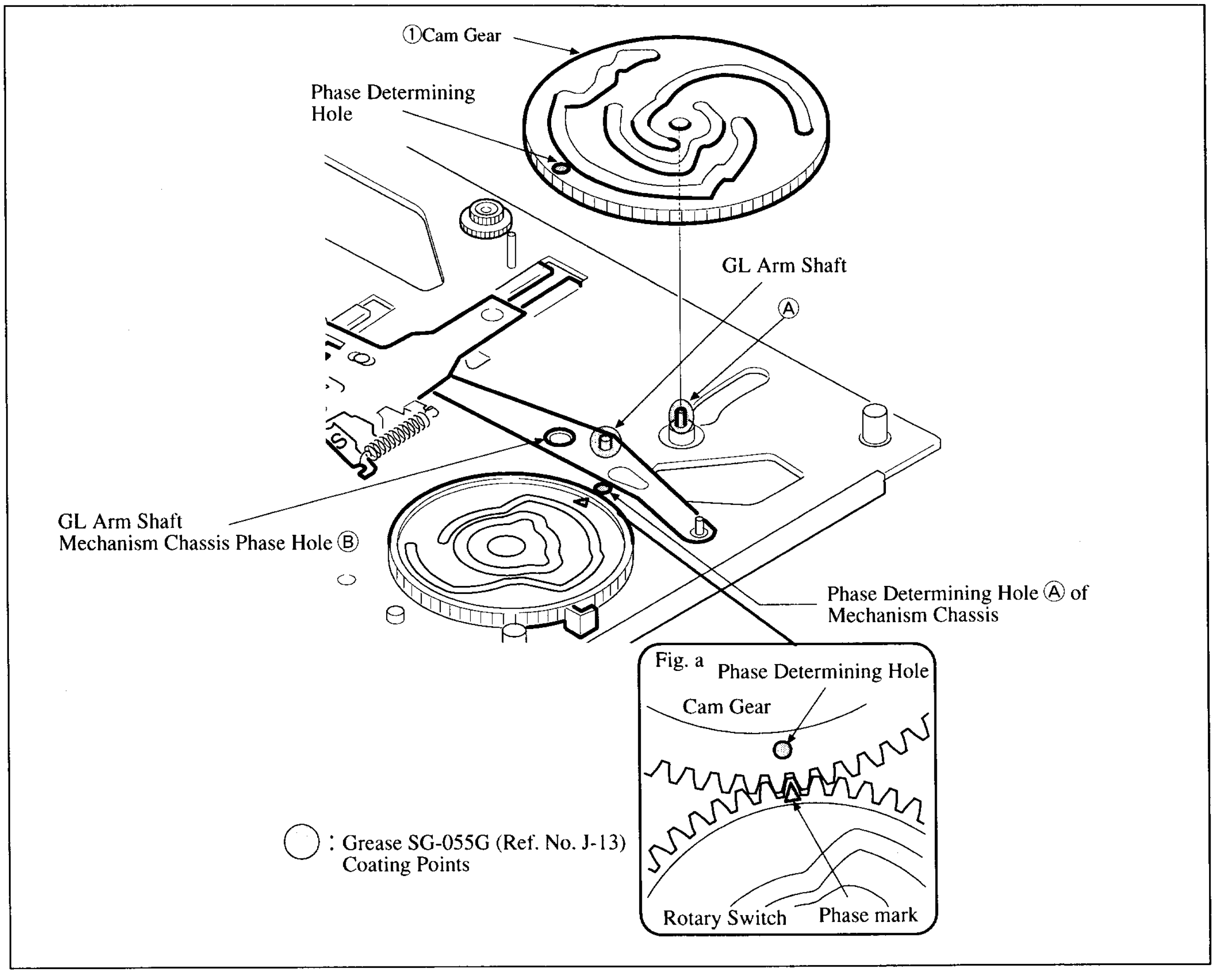

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft
Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

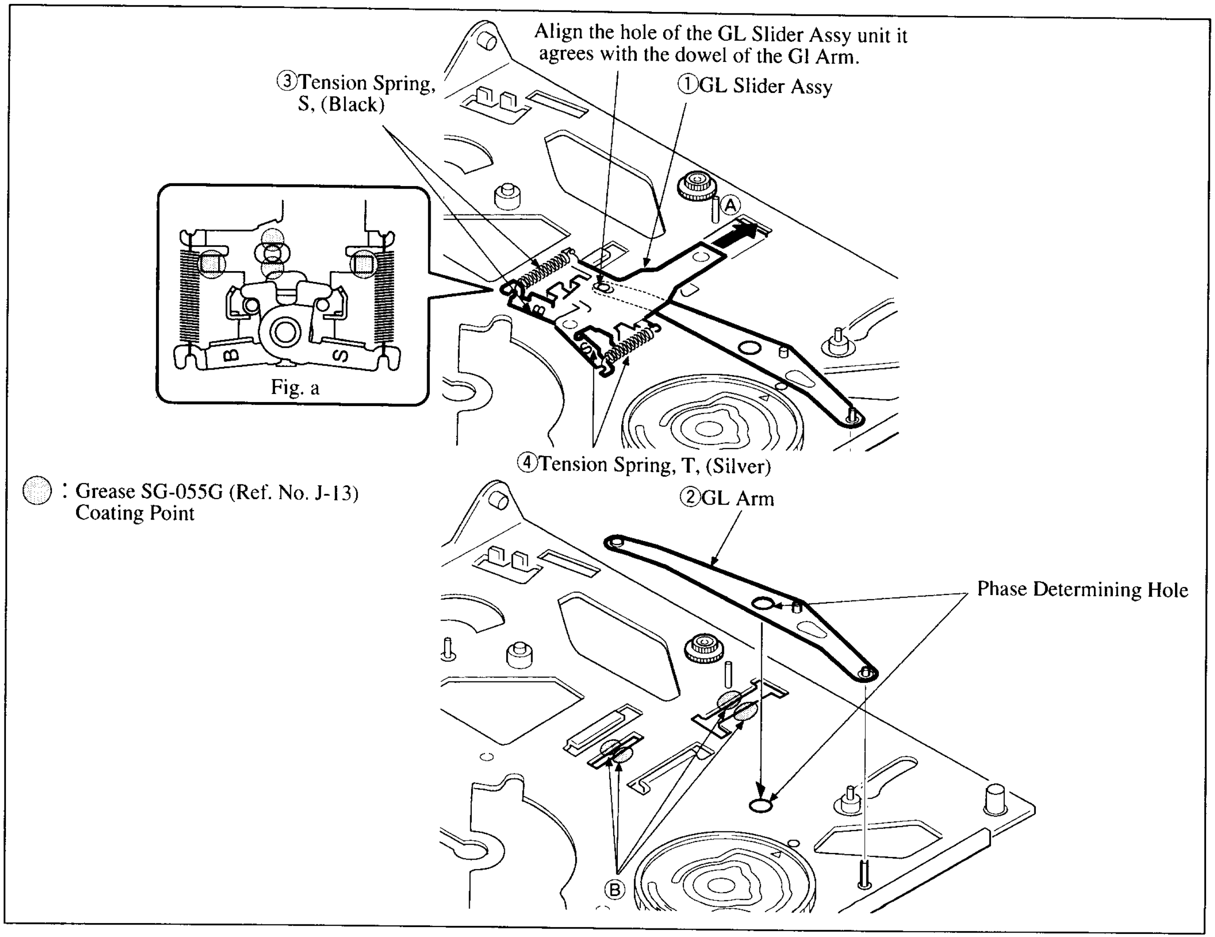

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
B
S
Fig. a
④Tension Spring, T, (Silver)
②GL Arm
Phase Determining Hole
Ⓑ
● : Grease SG-055G (Ref. No. J-13) Coating Point

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

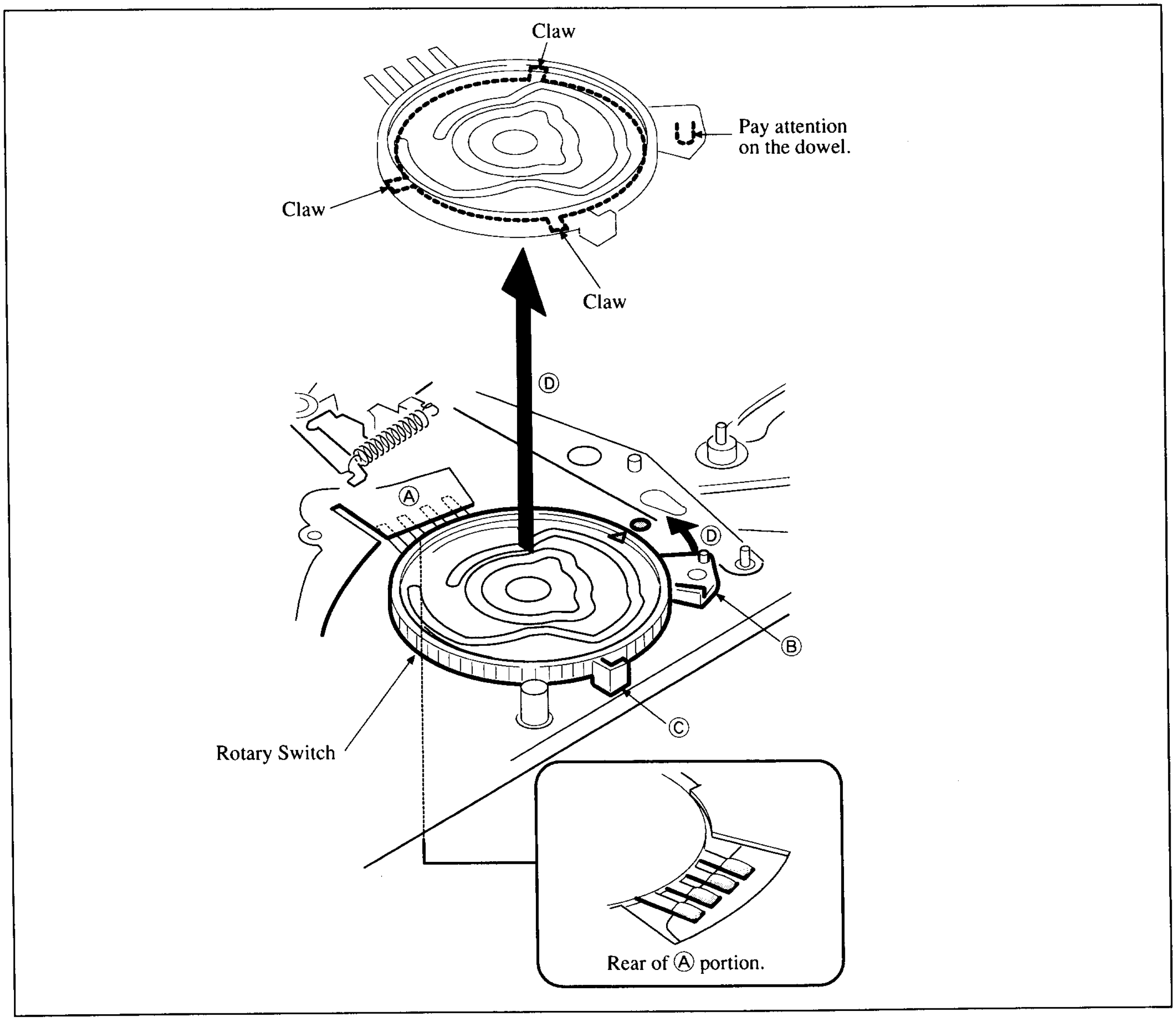


Fig. 22

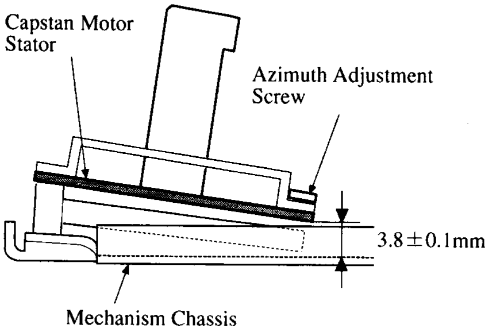
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor
Stator
Azimuth Adjustment
Screw
3.8±0.1mm
Mechanism Chassis

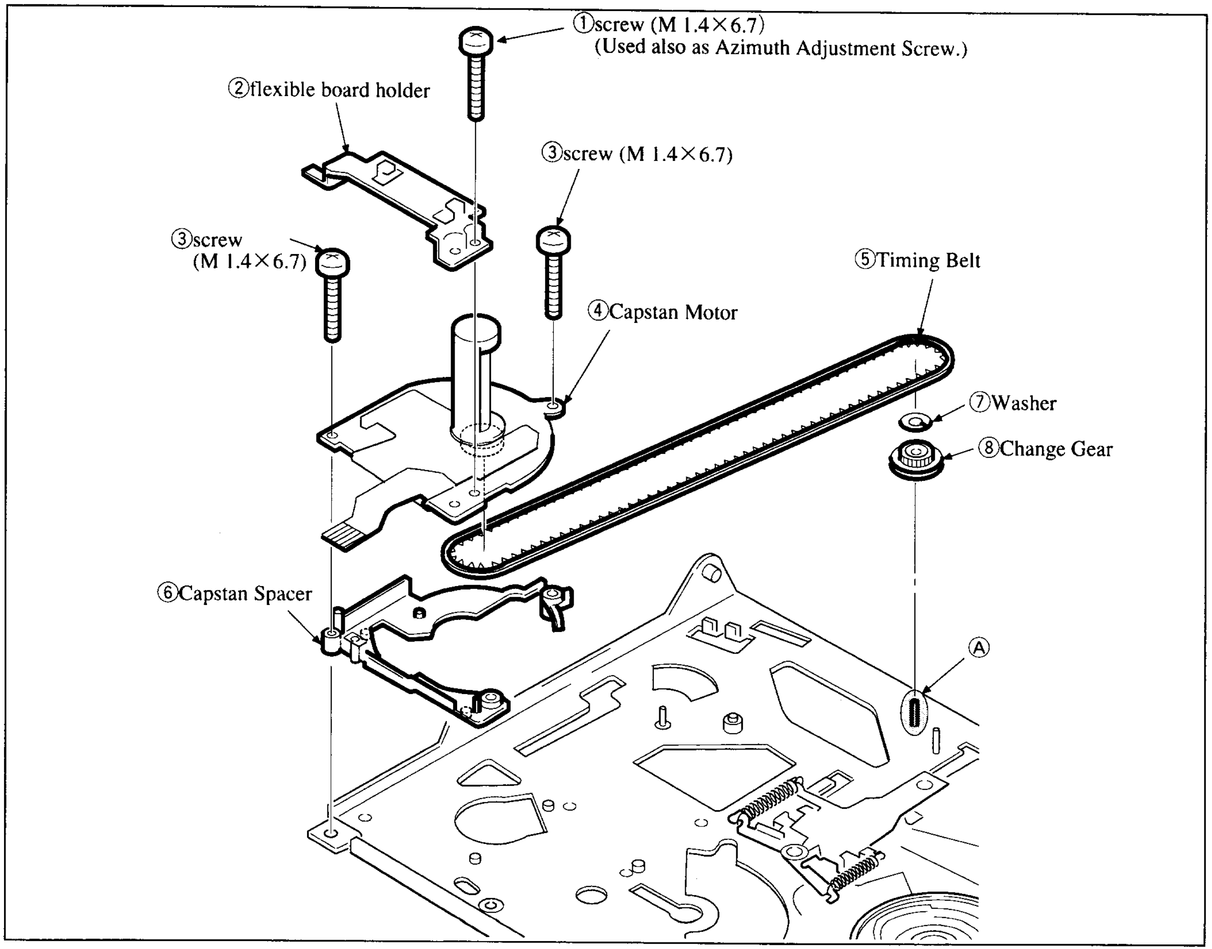

①screw (M 1.4×6.7)
(Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw
(M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

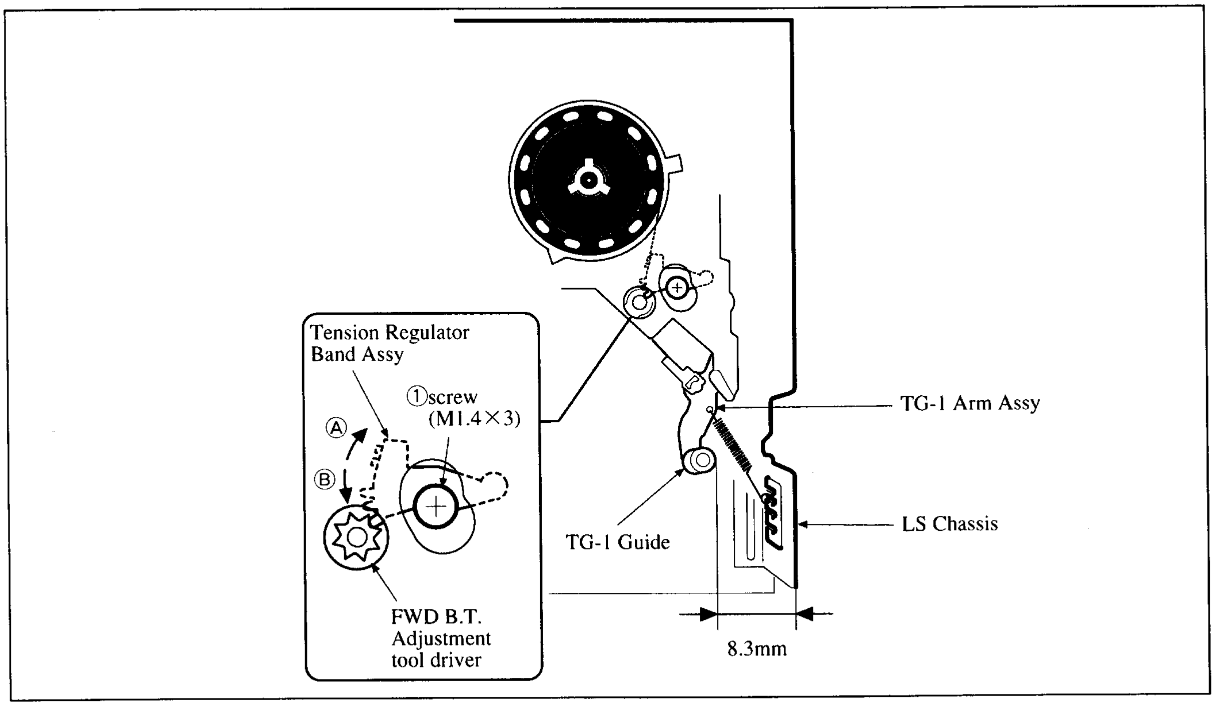

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Guide
TG-1 Arm Assy
LS Chassis
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

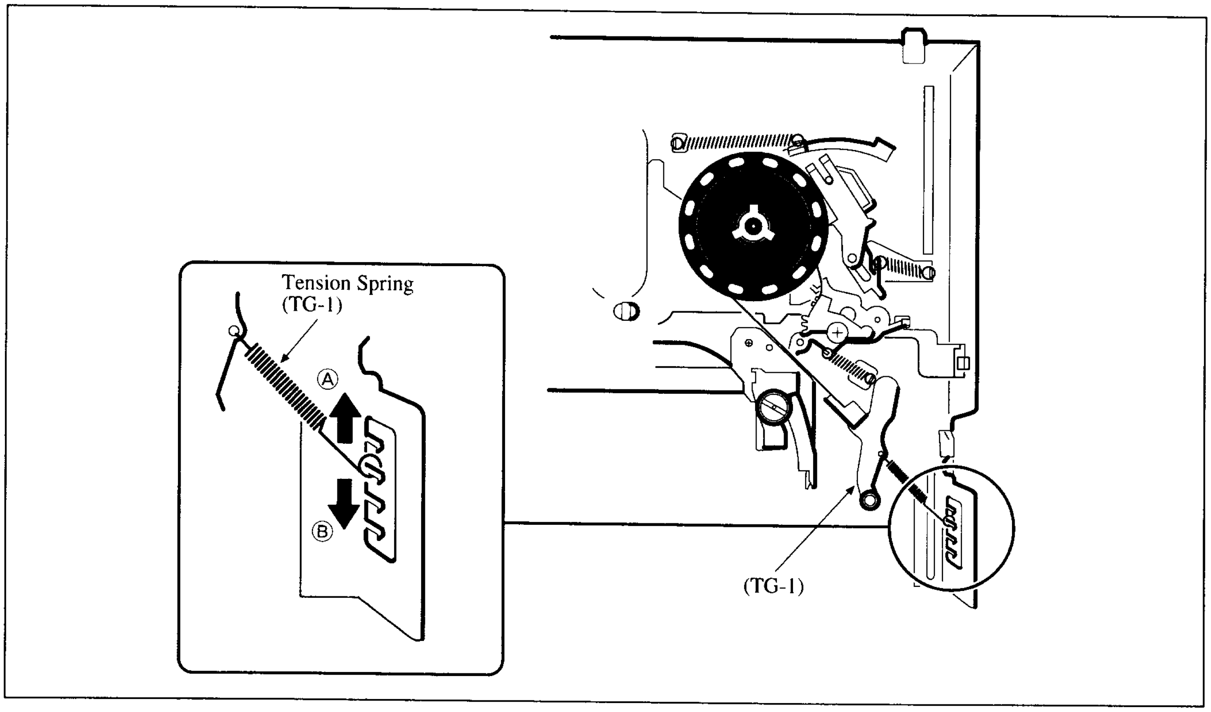


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose: Adjusts the head linearity.

Adjustment Error: Noise appears on top and bottom of display when playing back the tape recorded by other machines.

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

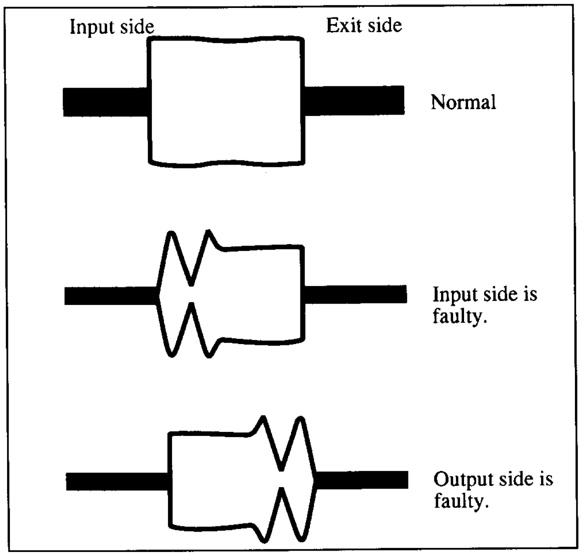


Fig. 26

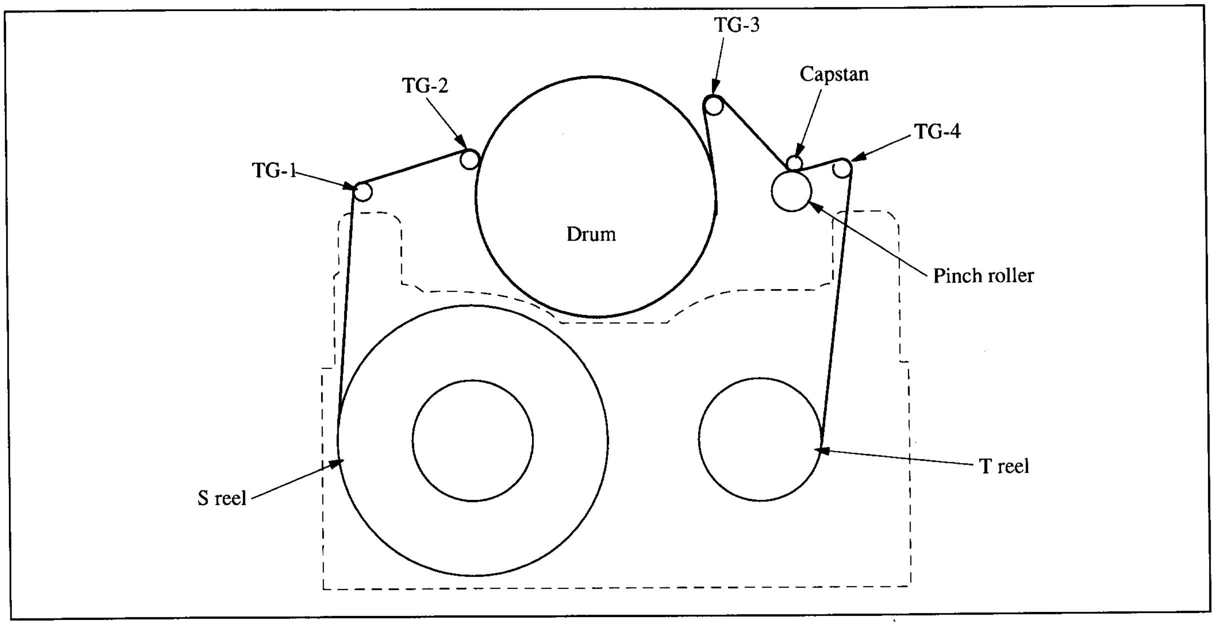


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

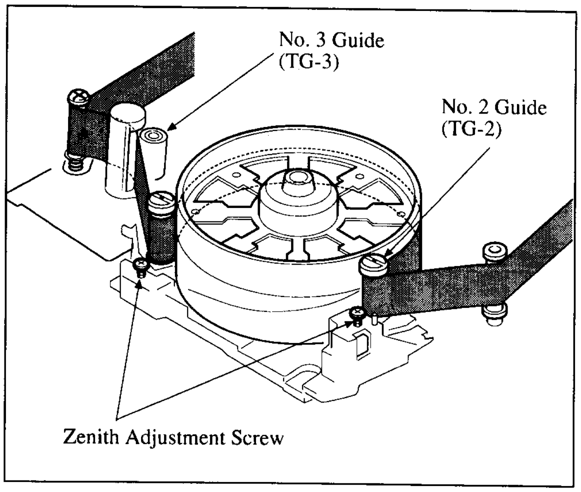


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

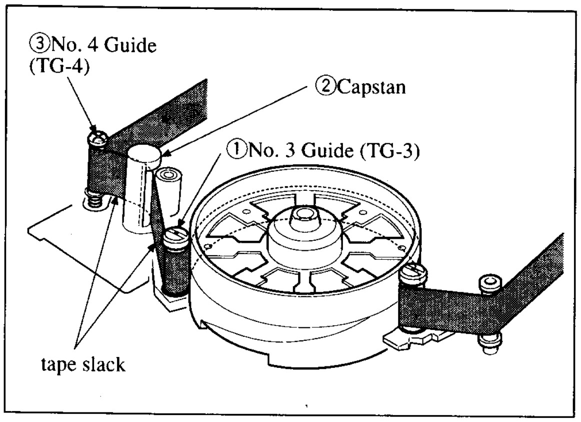


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

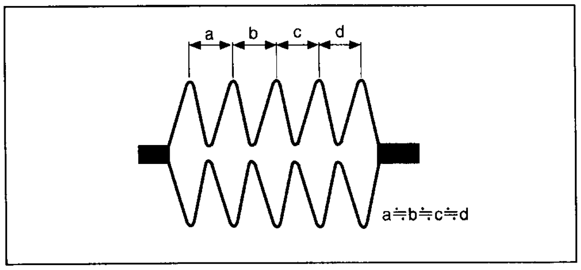


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

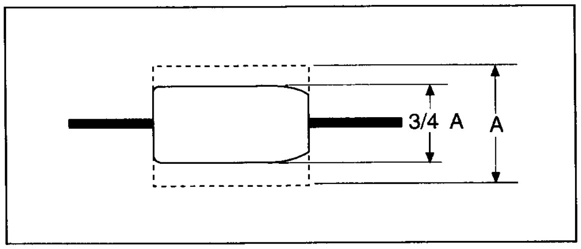


Fig. 31

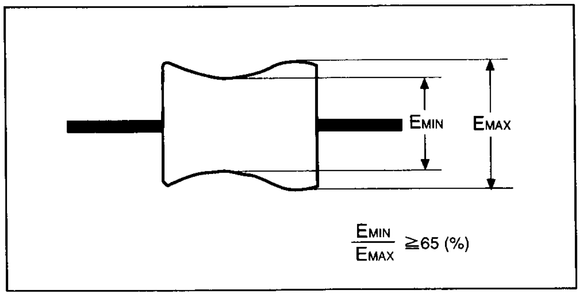


Fig. 32

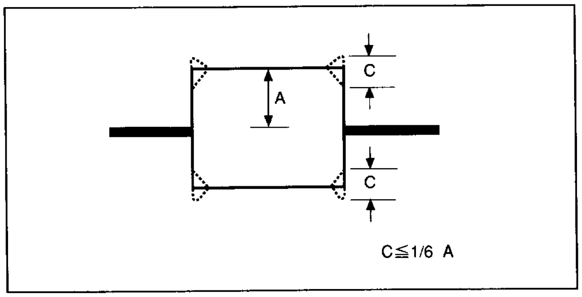


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

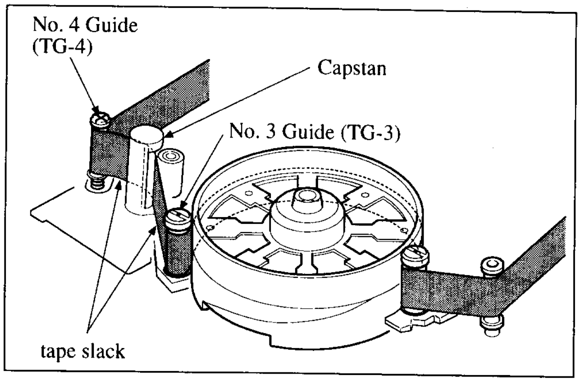


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

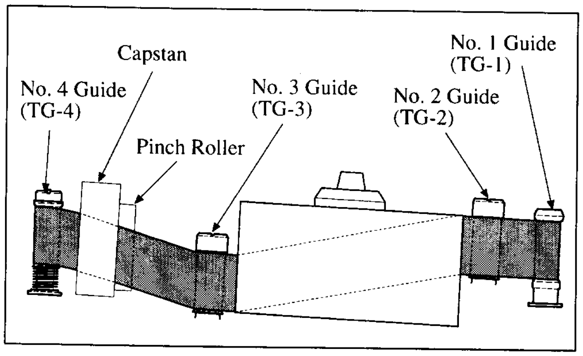
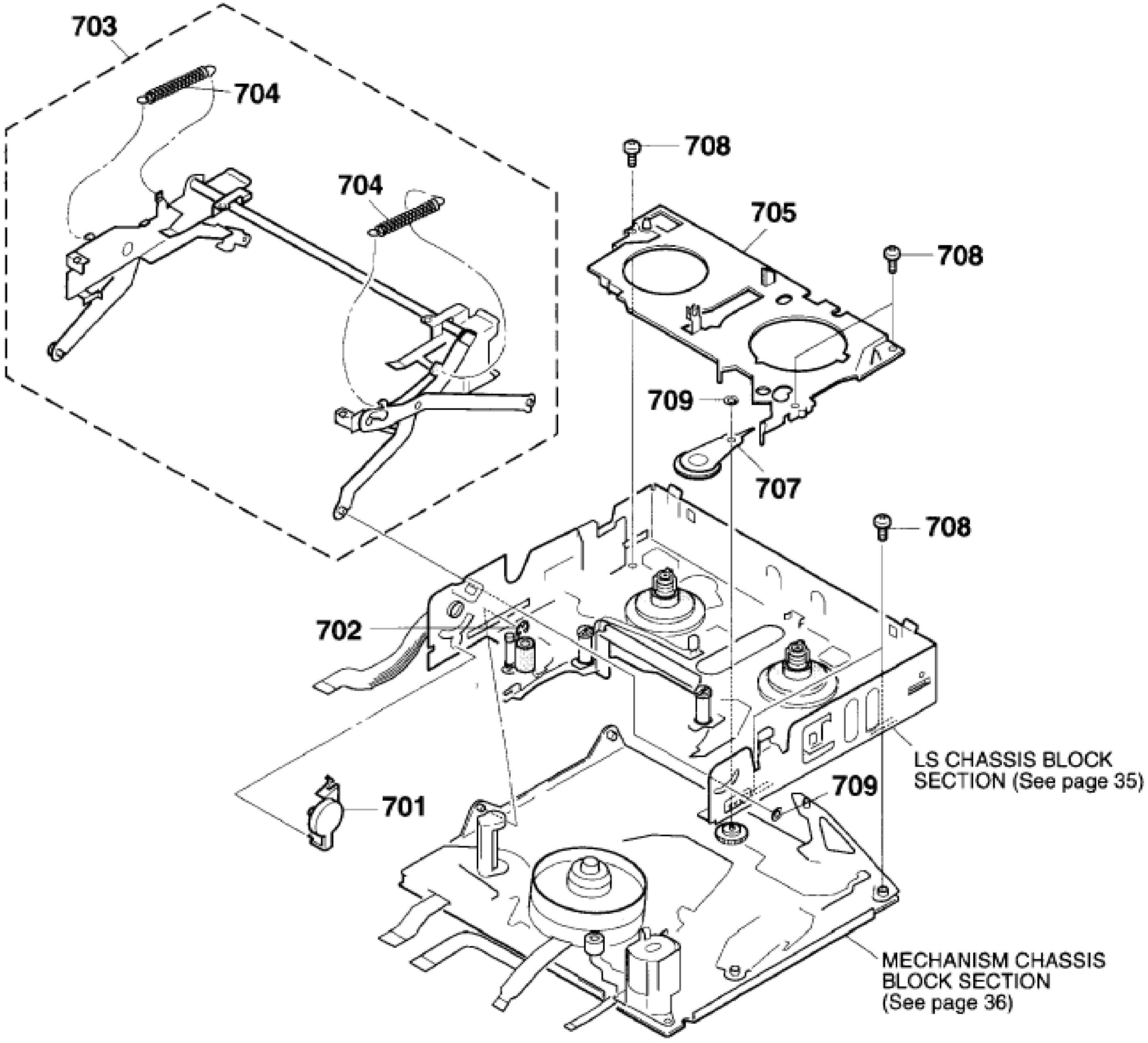


Fig. 35

5-1. Cassette Compartment Block Section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LS CHASSIS BLOCK SECTION (See page 35)
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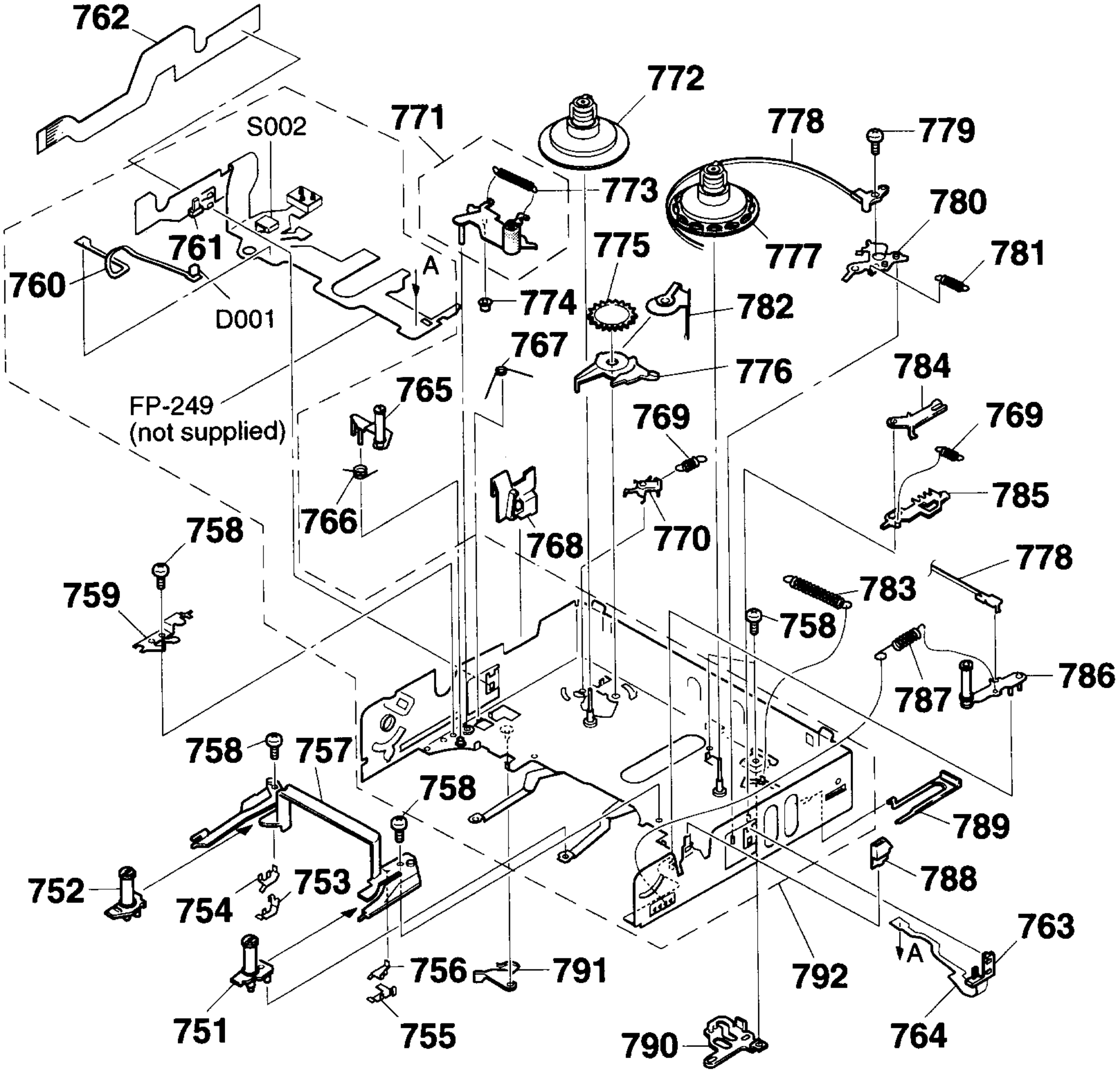
MECHANISM CHASSIS BLOCK SECTION (See page 36)

5-2. LS Chassis Block Section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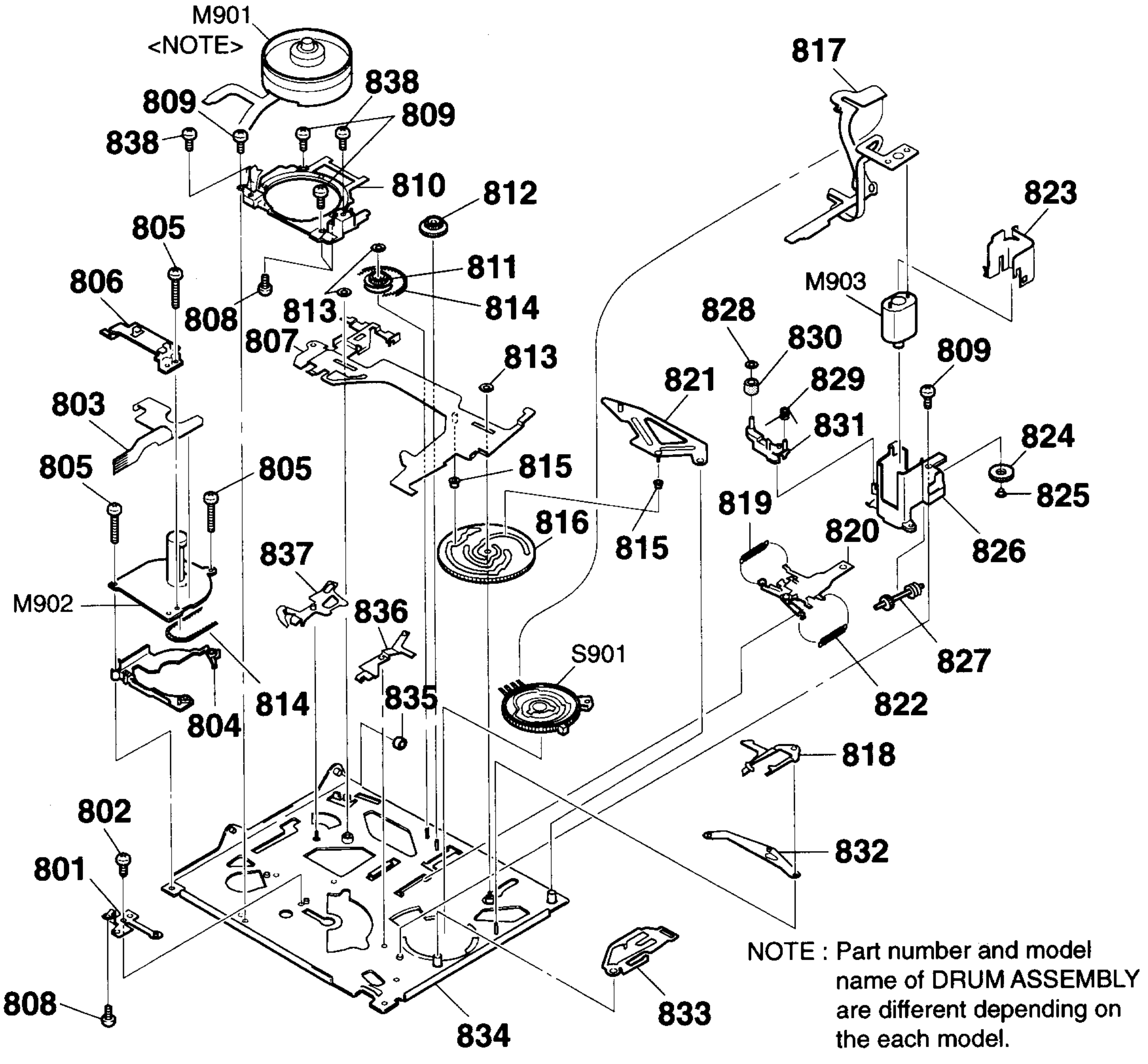
5-3. Mechanism Chassis Block Section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NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.